RAILROAD

35 CENTS MAGAZINE FEBRUARY

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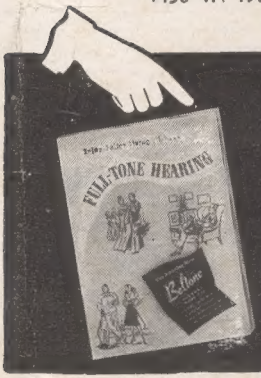

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Please send me FREE Booklet about Deafness and what can be done to overcome it.

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TOM STOPPED THE RUNAWAY AND THEN . . .

WATCHED BY HER DAD AND A PASSERBY, "BABS" WEBB IS GIVING HER FAVORITE TROTTER HIS MORNING WORKOUT WHEN . . .

STEADY, JEB!

JUMP, BABS!

THE FEAR-CRAZED ANIMAL SNAPS A REIN AND GALLOPS BLINDLY AT THE FENCE

WHOA, BOY! IT'S ALL OVER

WHEW! THAT WAS CLOSE. ARE YOU ALL RIGHT, BABS?

YES, THANKS TO MISTER . . .

TOM ADAM'S MY NAME. JUST DRIVING THROUGH

LUNCH? YOU'RE VERY KIND, BUT I'M HARDLY PRESENTABLE. BEEN DRIVING SINCE MIDNIGHT AND . . .

YOU CAN CLEAN UP AT THE CLUB. COME ON

AND HERE'S MY RAZOR

THIS BLADE'S A SWEETHEART! MY FACE FEELS GREAT!

TOUGH WHISKERS ARE NO PROBLEM FOR THIN GILLETTES. THEY'RE PLENTY KEEN

I WISH YOU COULD SEE ME DRIVE IN THE CLUB HANDICAP THIS SATURDAY

HE'S CERTAINLY HANDSOME

SATURDAY? TRY AND KEEP ME AWAY!

YOU'LL FIND SHAVING IS QUICKER, EASIER AND MORE REFRESHING WITH **THIN GILLETTES. NO OTHER LOW-PRICED BLADE IS SO KEEN AND SO LONG LASTING.** AND, FURTHERMORE, THIN GILLETTES PROTECT YOU FROM THE IRRITATION AND DISCOMFORT CAUSED BY MISFIT BLADES BECAUSE EVERY THIN GILLETTE IS MADE TO FIT YOUR GILLETTE RAZOR PRECISELY. TO GET REAL SHAVING SATISFACTION . . . **USE THIN GILLETTES**

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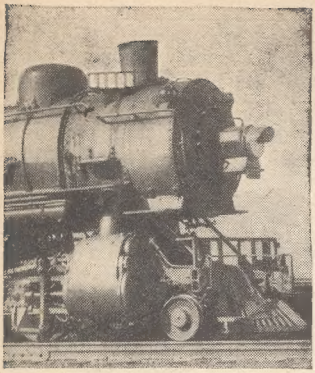

RAILROAD

MAGAZINE

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By Frederick Blakeslee

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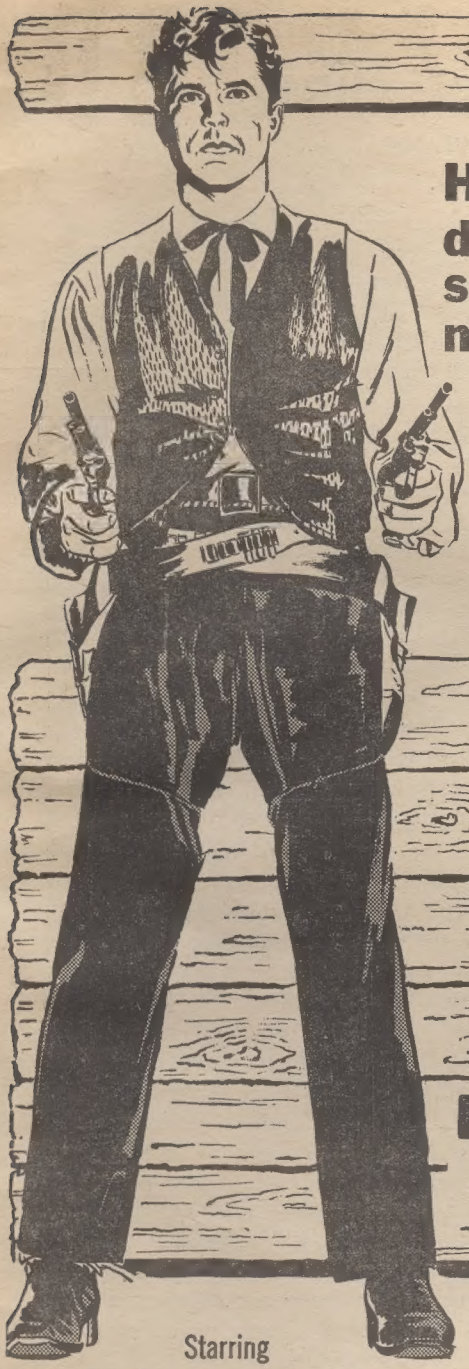


Warning!
NEVER TANGLE WITH
The MAN from TEXAS

He didn't say much...

HIS GUNS TALKED FOR HIM!

EAGLE LION FILMS presents

"THE MAN FROM TEXAS"

Starring

JAMES CRAIG · LYNN BARI · JOHNNIE JOHNSTON

with Una MERKEL · Wally FORD · Harry DAVENPORT · Sarah ALLGOOD · Produced by Joseph Fields

Directed by Leigh Jason · Screen Play by Joseph Fields and Jerome Chodorov · Based on the Stage Play by E. B. Ginty

Old Number Nine

By WHITEAKER WEAVER

I DOUBT if, in all the annals of railroading, there ever was a train more unique or temperamental than old Number 9. Back in the early 1800's she ran across my grandfather's place in Oregon, and connected the Southern Pacific terminal and county seat at Dallas with Independence, the center of the hop industry.

I guess the SP built the line in the first place, but when I knew it first, Joe Hirshberg, a big hop man and banker at Independence, owned her lock, stock and barrel. The lone car was pulled by a dilapidated old switch engine that the SP had discarded as junk. Joe patched her up and managed to keep her running on some kind of schedule. She made, or was supposed to make the eight-mile trip twice a day, wheezing, groaning and sputtering like an old man with asthma, St. Vitus Dance and whooping cough combined.

The combination coach and baggage car was partitioned off two thirds of the way up, and the baggage end was usually littered with drummers trunks and cans of milk and cream. It served as the smoker, too for woe to the passenger that Fud Johnson caught smoking in the passenger end of the car. Most of the drummers spent the entire trip in baggage sitting on their sample cases, swapping stories and pulling on their favorite stogies. The kerosene lamps added to the smudge and even on a sunny day the interior was a pretty dim place.

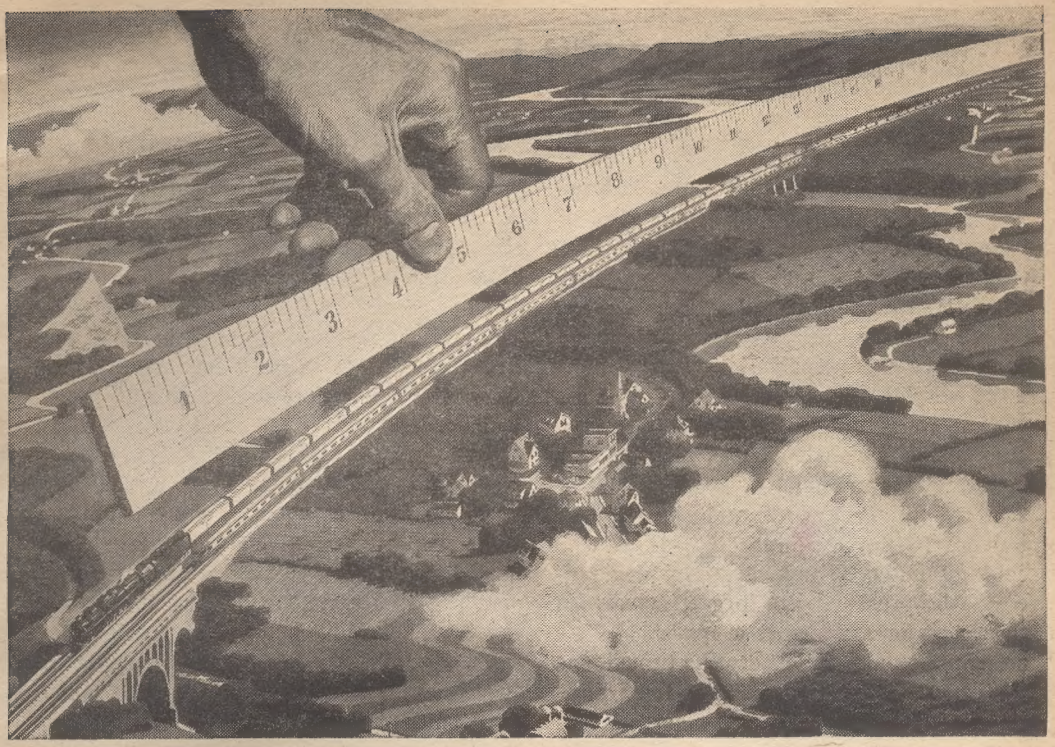
The running time was anywhere between forty minutes and an hour and a half depending on the visibility, the disposition of Joe Mulkey, the engineer, or the whims of the rest of the crew. It was three miles from Dallas to grandfather's farm and we made the trip for ten cents, no luxury tax added. I know Joe never made a cent operating the road, but he had a hell of a lot of fun with it.

So did we. At the end of a day's visit, grandpa would announce, "Time to get going, folks. Number 9's leaving Monmouth." From the front porch, he could see all up and down the valley. We'd bundle up and troop off through the darkness, down to the station, as we called the shed grandpa had built in the prairie field along side the track. There was no depending on Number 9's headlight, so we'd take a newspaper along to burn as a signal for her to stop. When we reached the wood yard at the edge of town the entire crew would get down and throw on two-foot chunks of wood till the tender was full. Then she'd have to have a drink at the water tank and if time was important, the passengers would get off and walk in to the station. Those were more leisurely days though, and the delays were usually accepted as routine.

In the bird season the crew brought along their shotguns and many a time they stopped the train while they went out after the pheasants that they saw feeding in the wheat stubble.

Once on grandfather's seventy-fifth birthday, the entire crew and three passengers left the train in the field, came up to the house and helped celebrate at a dinner in his honor. Old Number Nine was stone cold when they got back and it took over an hour to get up steam and get going again. Another time, they let the train stand for four hours, while they helped a posse round up two convicts that had escaped from the penitentiary at Salem. Fud got himself a new watch with his share of the reward.

About 1920 the old girl folded up. She couldn't stand the competition of trucks and buses. The right-of-way is grown over with brush and trees now. The ties are rotted away and the rails were torn up for scrap.



227,000-MILE YARDSTICK

Railroad progress is measured by the exact yardstick of *results* . . . results which show up in better service to the public by all American railroads—227,000 miles of them.

Results in more efficient freight service:

The amount of work done each day by the average freight car *practically doubled* between 1926 and 1946. And in the first five months of 1947 it was almost 10% more than in 1946! That's one important reason why railroads are able to handle the greatest peacetime traffic in history — including 1947's record-breaking wheat crop — with fewer freight cars than they have had in many years!

Results in better passenger service:

Railroads were the pioneers in air conditioning. Today practically every passenger car on principal runs is air conditioned. As far back as 1934, railroads introduced streamlined trains. And — although no passenger equipment could be built in the war years —today around 150 of these trains, sleek symbols of modern transportation, cover 100,000 miles every 24 hours. Many more are being built!

Results in greater safety:

In 1946 collision, derailment, and other train accidents resulted in only one passenger fatality for each 996,000,000 miles traveled! (That's right — almost a *billion* miles!)

These facts are a matter of record. They are practical, down-to-earth yardsticks of railroad progress. Railroad progress is the product of many minds... of much planning... of constant research... of wide cooperation and the expenditure of billions of dollars. And in measuring progress, it's not promises but *results* that count.

TO CONTINUE THIS PROGRESS

. . . the railroads must earn an adequate income. Over the last 25 years — and that includes the war years — the railroads have earned an average of only 3⅓% annually on their net investment.

Most people think 6% would be no more than fair. And 6% is the minimum the railroads need to continue to provide the kind of transportation you want.

Association of American Railroads

WASHINGTON 6, D. C.

Now....WE'LL Tell You!

By HENRY B. COMSTOCK

BROADLY SPEAKING, the railroad commuter is the bulk commodity of passenger traffic. He requires no high-speed schedules, holds up well under rough train handling, and is a predictable source of revenue. His matter-of-fact acceptance of transportation as he finds it is proverbial. Stand him in the aisle for twenty miles and he'll take the reverse curves as nonchalantly as an oldtime brakeman on a reefer top. Run him out of a terminal backward and he seldom bothers to flip the seat—like as not he couldn't budge it anyway. He acknowledges the presence of a forgotten baby on the baggage rack with a mumbled "g'-mornin'," and inhales deadly tunnel gas with no trace of emotion, save for a dimming of his oxygen-starved cigar.

Newspapers, pinochle, and Five P.M. fatigue have little to do with his stoic disposition. Attribute it, rather, to public relations in the finest meaning of the words. Unlike the occasional or long-distance traveler, the commuter spends a sizable portion of each business day in an old, familiar railroad setting. Whatever its shortcomings, he has a warm regard for the 7:52, or Number 86, as he has learned to call it. Its train crew no longer consists of a conductor, brakeman and fireman. They are "Cap" and "Art" and "Al," capable, level-headed neighbors with whom he discusses featherbedding, poultry-raising and politics on friendly, argumentative terms. He knows that they have had a wage increase in line with the rising cost of living, and that another is on the way. That is why, when commuter fares are hiked, he shells out the extra two bucks without complaint—the railroad has got to show a profit too, and if the ICC has given its blessing to the deal, he'll go along with it.

But there is a limit to his patience, as the Pennsylvania Railroad and the Jersey Central learned when they refused to honor his standard monthly commutation ticket on Election Day. That type of official stupidity costs the railroads plenty in the lost regard of staunch old patrons.

SHE can't buy air-conditioning because they took her off the nickel

And we don't think that CNJ has bettered matters with its subsequent, bizarre bid for public acclaim—the little leaflet which appeared on each day coach seat the other morning. Across the cover in bold type was the disarming title: *Now . . . YOU tell us. Would you like an air-conditioned coach?*

On the face of it, that question was too dumb. And the truth came out on page 3. There it appeared that the cost of applying cooling ap-

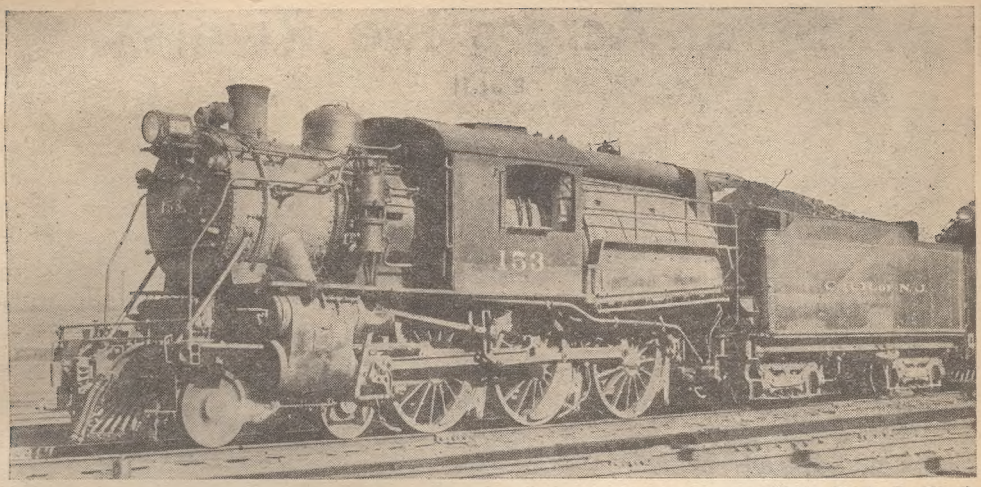


Photo by R. P. Morris

CENTRAL RAILROAD of New Jersey veteran. Fireman's shelter is air conditioned

paratus to all of the cars used in the Jersey Central's suburban service would run around four million dollars. Which was something the Liberty Line was fresh out of. However, if enough riders wanted to pool their Christmas checks and form a "Live Through Next Summer" Club, guaranteeing the railroad full occupancy (64 passengers) of a coach, they could have themselves four months of air-conditioning for a sum which would total $2,800 to $3,500 over and above commutation fares, depending upon the point of origin of the coach.

Delving a little deeper than the brochure, it turns out that the commuter who makes twenty-two round trips between Westfield and New York each month would pay two cents a mile for his assured, day-in-day-out patronage of such a car, or exactly two tenths of a cent less than the rate charged by the B&O for a round-trip, reserved seat ticket on the luxuriously appointed *Royal Blue!*

But brushing aside statistics, which have never treated the Jersey Central well, we are excited by the further possibilities of this method of sidestepping established commuter rates. One can picture the Liberty Line at some future date, placing a second leaflet on the plush upholstery.

"Unwanted patron," it might read, "yesterday the forty-five-year-old camelback which hauled this train broke down completely. Would you like another engine? We know where we can pick up a dandy, double-ended Diesel for around $300,000. But, doggone it, we're broke again. So here's a suggestion. Why not hustle around and form a Baldwin-booster Club to buy it for us? In that event we'd be happy to couple it on."

No, Jersey Central; you're running down the wrong track. Discouraging passenger traffic is no solution to the crushing burden of New Jersey taxes. Good public relations *IS*. You've got intelligent voting allies in the suburbanites who ride your trains. Tell them what you're up against in vigorous, this-effects-you-too car advertising, lectures and broadcasts. That kind of punching will get you a whole lot farther than kicking commuters in the shins.

Coming Next Month: **DELANO; Portrait of a Railroad Town**

Steel Across the Rivers

Part II

THE fifty years following the opening of the Brooklyn bridge in 1883 saw no triumph with more far-reaching significance. A score of great names, Linville, Lindenthal, Waddell, Mojeski, Ibsen, among others, would eventually claim the credit for structures like the Pennsy's new Steubenville (the first was designed by Fink in 1865), the Poughkeepsie bridge and the Southern Pacific's vertical lift span across Suisan Bay. But they were still in the future. The year of the Brooklyn bridge was the year when New York Central completed its Niagara River cantilever, designed by C. C. Schneider and set only a few feet from Roebling's suspension. It was to be replaced by Ibsen's steel arch in 1924, the year of the magnificent Castleton Cut-off.

By H. H. GROSS
Associate Editor
Railroad Magazine

The old names were not inactive. In 1886, Charles Shaler Smith left behind his last great work, the cantilever across the St. Lawrence. Four years previously, he had spanned the Mississippi at Minneapolis for Great Northern with a double-deck stone viaduct reminiscent of the great arches designed by Latrobe and Kirkwood. The 2100-foot bridge contains twenty-three circular stone arches constructed of various lengths to accommodate the curvature of the span. It is interesting to note the erection of such a structure in this period when almost every bridge was built of steel or, at least, of iron and steel.

So widespread was the use of the new material that almost all the old structures were either replaced or repaired in the following ten or twenty years. Stephenson's iron bridge became the Victoria Jubilee bridge in 1889 when Canadian National erected a cantilever over the St. Lawrence. L&N's Henderson bridge, first built in 1872, was similarly replaced by a cantilever.

But Great Northern's stone arch at Minneapolis was the herald of a limited return to the older type, which occurred simultaneously with the cantilever fad. Pennsylvania Railroad was the leader in this movement. In 1896, Pennsy erected a 4,397-foot bridge across the Delaware between Philadelphia and Delair, N. J. The new bridge consisted of three Pratt trusses with a center span of the swing draw type. Then, in 1902 and '03, the road turned to the stone arch with its Rockville and Raritan River bridges. The Rockville across the Susquehanna is still the longest stone arch in the world, with forty-eight arches and spans, each of the latter measuring seventy feet. The Raritan bridge has only twenty-one spans and is built of red sandstone masonry.

The use of concrete as a bridge material dates back to the Romans, but its modern adaptation sprang from the discovery that it was an excellent method of building up piers on the tops of coffer dams and caissons. The introduction of reinforced concrete into masonry arch construction permitted tensile stress, and consequently, the use of larger spans, thus widening the field for

Courtesy Southern Pacific Lines

HUEY LONG bridge at New Orleans, a double-track structure with eight main spans crossing the river proper. Total length is 4.4 miles

masonry to a very great extent. Concrete is reinforced by the insertion of mild steel sections to resist the shearing stresses, while the concrete itself takes up the compressive strains in the members. The strength of the finished bridge depends upon the correct position of the steel reinforcement, and the masonry bridge is therefore impossible to build succesfully without constant supervision on the spot. The Eads bridge was finished while Eads recuperated from the strain of overwork in Europe, and Washington Roebling supervised the Brooklyn bridge from a window more than a mile distant from the scene of work. This would be impossible with a bridge of reinforced concrete such as the Lackawanna's Tunkhannock viaduct.

This most beautiful of all masonry bridges was completed in 1915. Like almost all modern structures of its

Courtesy New York Central System

CASTLETON CUT-OFF, built to relieve the Albany gateway and speed up freight movements to and from North Atlantic seaport, spans the Hudson twelve miles south of Albany. High-level bridge consists of two truss spans of 600 and 400 feet; gives navigation a clearance of 135 feet

TEXAS SPECIAL crossing the Katy's new $500,000 Posey Hole bridge across the North Canadian near Eufaula, Oklahoma. Structure is a through-plate girder type

Photo by James F. Laughead. 4213 Avondale, Dallas, Tex

type, it was designed with slender vertical pillars—or open spandrels—rising between the arches and the roadway. The sides are faced with ornamental stone to give the appearance of a stone or brick arch. Bridging the great valley and small creek from which it takes its name, the viaduct is twelve-arched and double-tracked. Two of the arches, each 100 feet long, are covered by fill; the other ten, visible to the eye, are 180 feet in length. The total length is 2,375 feet.

In the same year that DL&W began its Nicholson Cut-off, of which Tunkhannock is a part, another famous arch was built, but this time in steel. By 1890, it had become clear to scores of American engineers that bridge-building in this country had not kept pace with its original impetus. The powerful bridge companies, fabricators of patented designs which were bought by the thousands and required nothing more of the engineer on the spot than the addition of blocks at the joints, monopolized the bridge field. The result was an emphasis on cheapness and facility of construction, and an almost total disregard for real durability or for beauty in design.

In revolt against these conditions, hundreds of engineers turned to Europe, particularly to the German universities and German bridge masters. Gradually, the system was revised to the extent that the engineer, rather than the fabricator, came to control the physical properties of rolled structural members. The commercialized period of bridge construction had by no means reached its end—it is still in full sway at the present time—but the railroads' engineering departments began to insist on the possession of a certain amount of theoretical knowledge on the part of their members over and above a practical carpentering experience. The credit for writing the first set of bridge specifications belongs to a group of engineers employed by the Cincinnati Southern. Then, in 1905, nearly sixty years after Squire Whipple's study of stresses, came the first thorough and accurate examination of the action

Courtesy Pennsylvania Railroad

LONGEST stone arch bridge in the world, Rockville over the Susquehanna above Harrisburg, Pa., carries the four tracks of Pennsy's mainline to the West. Each of the forty-eight arches has a span of 23 yards; total length is 3808 feet

of secondary stress in a volume by Professor Hiroi of Tokyo Imperial University. The theory of this German-educated engineer made possible the design of the second Quebec cantilever and of Hell Gate in 1915.

HELL GATE or, to give it the official title, the New York Connecting Railway, is only one of four spans connecting Long Island with the Bronx and providing a thorough route for the Pennsy and New Haven between points north and south of New York City. The other bridges are truss spans, but Hell Gate with its span length of 977½ feet, is one of the heaviest and longest steel arches ever built. Its designer, Gustav Lindenthal, also designed in 1930 the Queensboro bridge, a double-decked cantilever with railroad tracks on the upper deck, crossing the East River between Manhattan and Long Island.

No type of bridge but the arch would have been suitable to the site chosen for Hell Gate at the juncture of the Sound and the great rivers dividing Manhattan. The cantilever lacks the necessary beauty and a suspension would have appeared too slight. The plans called for erection of the arch to a total height of 305 feet above mean high water. The roadbed, carrying four tracks on a heavy ballasted floor, is suspended from the arch. The end sections of the bottom chord, four of the biggest single members of steel ever erected, weigh 185 tons each and required two freight cars for their separate transportation.

The parabola-shaped bottom chord makes it the principal carrying member of the arch, the other members serving mainly as bracing to provide for moving loads. The reverse curve of the top chord produces an attractive sky line with its em-

phasis on the horizontal thrust from the steel arch to the massive masonry of the towers.

Construction of the foundations for the towers ultimately involved an engineering operation without precedent. A chasm in the ledge on Ward's Island had to be bridged with arches and cantilevers of concrete to form one foundation. Again, the middle caisson of a row of three, each 40 x 30 feet wide, is supported on a heavy concrete arch with a span of sixty feet built up between the two outer caissons. Two adjoining caissons, in another row but part of the same foundation, are partially founded on rock and have their cutting edges cantilevered out over the fault in the river ledge. All of these hazardous operations were executed below the cutting edges of the pneumatic caissons, at a depth of seventy feet below water level.

The superstructure was cantilevered out, since the strong tides in the East River and the character of the bottom made falsework impossible. The arch was therefore built out in two sections, one from each shore, and the projecting ends counterbalanced by 5300-ton

Print from Freeman H. Hubbard

CONSTRUCTION on the Eads' bridge was sketched for ***The American Railway***, published by Scribners in 1897

Courtesy Pennsylvania Railroad
UNIQUE among vertical lifts when completed March 23, 1935, Passaic River bridge is in two sections and on two levels. The triple lift spans can be raised 111 feet in 85 seconds to give a 135-foot clearance for navigation

RIGHT: Building up the arches for the Tunkhannock viaduct, designed by Meyer Hirschthal under the direction of George J. Ray. The reinforced concrete arches were treated to resemble stone construction, with imposts at the springing line and the surface of the arch marked off to resemble *voussoir* stones. Note the work tower, center support of the 3000-foot double cableway

weights on massive steel staybacks. Four hydraulic jacks, each with a lifting capacity of 2500 tons, were placed at the tops of the bridge towers, to lower the two halves of the arch to their final position. When the load on the staybacks was released, the arch became a self-supporting structure. The bridge floor was then formed by suspending heavy beams below the arch. The stringers were framed between the beams and steel I-beams used to reinforce the concrete troughs in which the railroad tracks were to run.

Courtesy George J. Ray, former Chief Engineer, Delaware, Lackawanna & Western Railroad

Though passenger trains of the New Haven and the Pennsy between Boston and Washington operate through this arch at the rate of more than twenty each day, the arch has been especially instrumental in speeding traffic to and from southwestern Connecticut, all of which formerly had to be rerouted in the New York stations.

FALSEWORK erected to construct center spans of Poughkeepsie bridge. Completed in 1889, rebuilt in 1904

In the early days almost every bridge of importance replaced a ferry service. Later, as the railroads grew old and their equipment heavier, and as the builders graduated from wood to iron to steel, bridges were constructed to replace other bridges. But within the last few years, iron rails have spanned bodies of water over which, earlier, it was impossible to erect a span and which, until quite modern times, were still crossed only by ferry. One instance of this kind is the Huey P. Long bridge over the Mississippi at New Orleans. The bridge is owned by the New Orleans Public Belt Railway, but Southern Pacific made its construction possible by guaran-

NEW HAVEN'S Buzzard Bay bridge over the Cape Cod Canal. Castle at entrance to bridge is the emblem of the United States Engineering Department

Photo from Harold L. Weeks, P. O. Box 14, Bourne, Mass.

FIRST TRAIN crossed the Booneville draw-span over the Missouri in 1874. Modern bridge, *at right*, is a vertical lift with a 400-foot clear channel span. MoP tracks run under the fixed span on the south bank

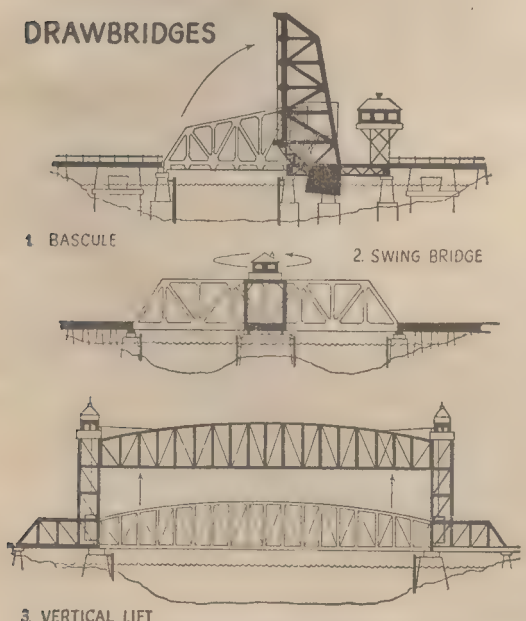
Courtesy Missouri-Kansas-Texas Lines

teeing a minimum of train tolls and therefore the 4.4-mile structure is generally referred to as a Southern Pacific bridge. The second instance of a recent bridge replacing a ferry service is Southern Pacific's Martinez-Benicia over Suisan Bay, an arm of San Francisco Bay. This is a vertical lift bridge.

THE bridge that opens is not a new type. One of the earlier famous spans was the Katy's Boonville bridge across the Missouri, a swing draw completed and opened for service in 1874. The original superstructures included four masonry piers, three of which supported the draw span, three iron cylinder piers and, on the south, a masonry abutment. The iron piers of a sort used prior to caisson construction were twin cylinders filled with rubble and tied together above low water by iron and masonry construction. Only the masonry pier under the north end of the draw span was sunk by the new pneumatic process.

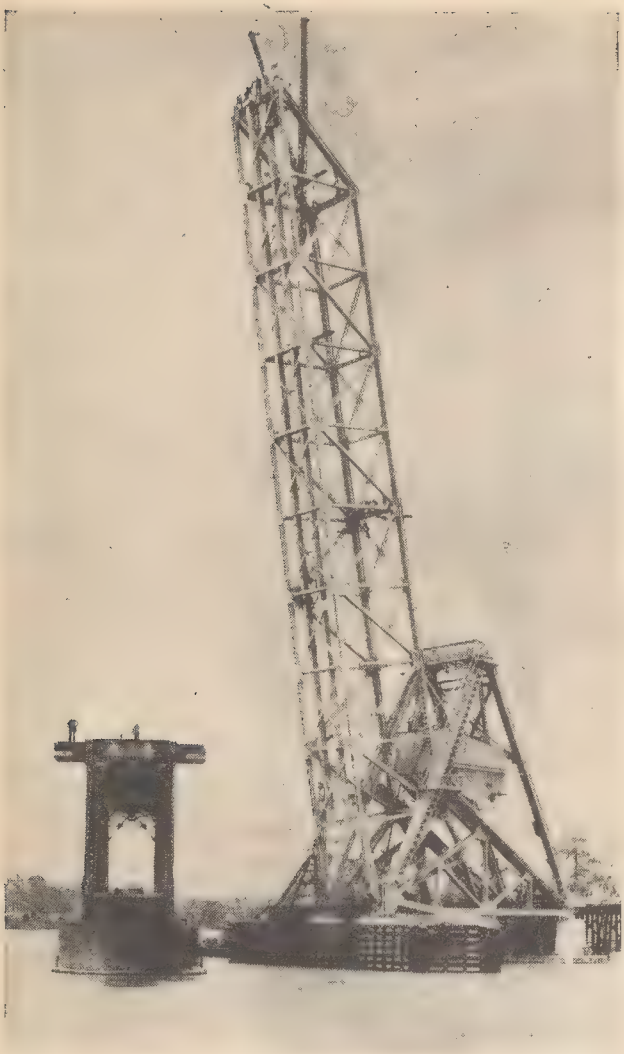
Besides the swing span, there were twin 15-inch I-beams, 150 pounds to the yard, supporting three-ply timber stringers on the floor. In 1883 and 1884 the original spans were rebuilt to accommodate a moving load of two Consolidations, with a total weight of 168,000 pounds, followed by a train weighing 2240 pounds per foot of track. In another decade, the superstructure had again been rebuilt—this time for a live load of 208,000 pounds plus a train of 3000 pounds per linear foot. Again, in 1929, it was

evident that the structure was inadequate to the weights it was called upon to bear. The new bridge, completed in 1932 and designed for Coopers E-70 loading for a single track, is a vertical lift combined with four fixed spans, all through rivet-connected trusses, and a 60-foot plate girder over the MoP tracks on the south bank.



SCHEMATIC drawings illustrate types of opening bridges. Black lines show the open position

At the time of its construction the 408-foot lift span was the longest railroad bridge of its type. The span is operated by two 80-horsepower motors on each of the two towers. The motors supplying the driving force to raise the bridge are geared directly to sheave wheels over which run the cables, sixteen to each sheave, connecting the 1000-ton span with the concrete and steel counterweights. The whole operating mechanism is interlocked with the track so that power is not available for lifting until the blocks are clear and signals and derails set against approaching trains. If necessary in any emergency the operator



BASCULE type bridge spans the Neches River at Beaumont, Texas. The longest now in existence, this single leaf bascule span is 230 feet; it replaces a 247-foot swing span which because of its central pier divided the navigation channel into separate paths only 98 feet wide. The bascule is now the rarest type of movable bridge, due to the fact that some inconvenience to navigation has always been associated with its characteristic center pier

Courtesy Rock Island Lines

can control the span manually.

The swing span has been the most usual type of opening bridge. Here the structure is pivoted to revolve in a horizontal motion. The weight of the span is usually carried by radially set rollers running over a circular track, so that the function of the pivot is largely that of centering weight. The swing span must have supporting piers, and these constitute the major disadvantage of the type. The piers occupy too much space in mid-channel and are either a nuisance to navigation or a menace to the bridge itself in flood time.

The bascule requires supporting piers, but permits them to be spaced so as to allow a clear channel in mid-stream. This type of opening bridge consists of counterweighted leaves which rotate on horizontal pivots, opening upward. The weight of the leaves must be concentrated on the pinions, a disadvantage which had the effect of limiting the bascule to small spans.

The vertical lift has many superior qualities. The weight of the span is taken by wire ropes passed over pulleys at the tops of tall towers, the height of which is such that sufficient clearance is gained when the span is raised vertically. Another advantage is that the power necessary to raise the counterweighted span is no more than is necessary to overcome inertia. Consequently, quite a number of railroad bridges

Courtesy Southern Pacific Lines

MASSIVE, double-tracked bridge over Suisan Bay serves SP's Overland and Shasta route trains. That's the *City of San Francisco* eastbound, with the camera looking north toward the bridge

Courtesy Canadian National Railways

IDEA for Quebec bridge originated in 1851; forty-eight years later work began. In 1907, the south shore arm collapsed with a loss of eighty lives. In 1916, the center span fell, killing fourteen. This largest cantilever in the world was not completed until the following year. Total cost, $22 million

within late years have been constructed on the vertical span principle.

Chief among these are the New Haven's Buzzard Bay bridge (actually owned by the United States Government) over the Cape Cod Canal; the already mentioned Martinez-Benicia bridge; the Rock Island's Harry S. Truman and the Jersey Central's Newark Bay bridge. The Buzzard Bay structure has a lifting section 544 feet long with a headroom of 139 feet over the water when the span is up. The Harry S. Truman, frequently publicized as the longest vertical lift railroad bridge in the United States, has a span length of only 420 feet. This three-million-dollar structure was opened for traffic in May, 1945. Designed to handle the heaviest type locomotive, the new Rock Island entrance to Kansas City represents 4300 tons of structural steel, 15,300 cubic yards of concrete, 400 tons of reinforced steel and 66,000 linear feet of timber piling. The river piers alone are of reinforced concrete and founded on bedrock shale about eighty feet below the river level; the other piers have pile foundations. The superstructure comprises four steel through-truss spans, of which the lift span is one, and seventeen steel deck-girder spans.

An earlier vertical lift is the Jersey Central's 1½ mile long Newark Bay drawbridge, the longest four-track railroad bridge of its type in the world. This mammoth cost $12 million in the three years of construction, 1923-'26. It is designed to bear 234-ton locomotives—a clear gain in weight of 166½ tons over the engines built in the late nineteenth century. Concrete piers support the draw span, which is actually an assembly of four two-track electrically operated vertical lifts with the spans crossing two channels. The east span can be opened in sixty-five seconds, and the west one in seventy-five seconds. The structural steel employed here was almost twice as much as that required for the Harry S. Truman but is 1.4 less than that used in the superstructure of the SP's giant Susian Bay crossing.

This 5603-foot span is the largest and heaviest two-track structure west of the Mississippi. Opened for traffic in October, 1930, it replaced the famous ferries, the *Solano* and *Contra Costa*, which had handled freight and passenger trains across Carquinez Straits since 1879. Interestingly enough, one of these ferries, the *Solano*, was designed by Arthur Brown of the Central Pacific on the truss bridge principle. The *Solano* made its last trip on November 1, 1930, the day the new bridge was dedicated.

The famous sister boats were still capable of carrying two of the heaviest modern type locomotives and either thirty-six freight or twenty-four passenger cars at the time of their retirement, but traffic had increased to such a point that speed of movement across the bay had become all important. In 1900 the Secretary of War had vetoed plans for a low-level wooden-pile bridge with a steel span, on the excuse that such a structure would choke the

Courtesy Erie Railroad

TWICE as heavy as the original structure (1882), the present Kinzua viaduct weighs 6,715,000 pounds. The 76-year-old stone masonry foundations were completed in the ninety-four days allotted to the construction of the first crossing of Kinzua Creek in McKean County, Pa.

bay. Twenty-seven years later, the company was able to begin work on the bridge which finally replaced the ferries.

Great care was exercised in locating the site. Two points of solid rock, one at Army Point, two miles east of Benicia and the other at Suisan Point near Martinez offered the proper foundations for the bridge approaches and the abutments.

The bridge length was to include a viaduct approach on either end, seven main spans of the through Warren truss type, one lift span and two deck spans. The lift span, 328 feet long and weighing approximately 1580 tons, is the heaviest of its kind in existence. This massive steel is raised and lowered like an elevator between two steel towers 125 feet in height in the remarkable time of less than ninety seconds.

Construction was begun on May 3, 1929, and involved many unusual features. The smaller piers near the shore line were built up by the ordinary coffer dam method, with concrete forced into the wooden or sheet steel piling; but the eight principal piers were located at points where the water and mud were too deep to allow the use of open coffer dams. For these piers, the sand island method was resorted to.

The first step was the erection of a timber pile falsework, ninety-seven feet in diameter and having its double row of Douglas fir piles braced by timbers arranged to form a working platform. Then, a steel tower forty-four feet high was built in ten-foot sections of eight segments each.

When the third section had been completed, the shell was lowered into the bay to a depth of twenty-five feet and bolted fast to the platform for security while yet another 30-foot shell was assembled on top of it. Again, the contraption was lowered, and the operation repeated until the tower had been sunk ten or more feet into the mud.

At this point, sand from the bay was shoveled inside the great circle of steel until it was filled to slightly above low water level. The pumps were brought into play to keep this artificial sand island dry while a structural steel frame 60 x 40 feet was forced down through it, and concrete caisson constructed upon the steel frame.

The plans specified that each caisson must be sunk to exactly twenty-seven feet below mean water level. During the accomplishment of the final sinking operations, a deep sea diver was called in to report on conditions inside the dredging wells. As soon as the caisson was in proper position, tremie concrete was forced through 12-inch pipes into the dredging wells to seal them to within fifteen feet of the top. A concrete distributing block was then set in place and reinforced concrete built up on top of this.

There were other unusual features of construction, such as earthquake-resistant piers and the temporary use of one of the steel deck spans as falsework during the building of the permanent spans across deep water.

The most ordinary of the four means of erecting a bridge—*i.e.*, by the use of temporary staging (falsework), by cantilevering out, by rolling out or by floating out—involves the use of timber piles driven into the river bed and spaced so as to take the dead weight of the bridge as it is built up. SP's steel span falsework

Courtesy Rock Island Lines

BIGGEST railway construction project of recent years. Rock Island's Samson of the Cimarron, situated east of Liberal, Kansas, was dedicated July, 1939

calls to mind procedures concerned in all four means of erection. The span was first set up on piling sunk in the shallow waters at the south end of the bridge site.

Then it was floated by barge (floating out) to deep water where it was rested on the shoulders provided by the piers before they were completed. Here it was below the level designed for the permanent span and could be used as a temporary working platform. This is somewhat reminiscent of cantilevering out, except that in this method one end of the steel member is tied to a new member and the process repeated until, working from both ends, the opening is spanned. There is also a resemblance to the process called rolling out in which the span, conveniently constructed on rollers, is pushed into position wherever it is needed.

The Martinez-Benicia bridge was designed to carry a load its full length fifty percent heavier than the trains being operated in 1930. The railroad engineer had finally learned his major lesson—that the bridge must always and in every case be planned, not for the weight of today's engines but for those of twenty or fifty years in the future.

TRESTLE on Pere Marquette line between Baldwin and Traverse City, Mich., is called High Bridge

Courtesy Great Northern Railway

CANTILEVER constructed here in 1893 was part of the old Idaho & Washington Northern route. Replaced by truss erected in 1947 for Coopers E-50 design, the cantilever now serves highway traffic in British Columbia

THE story of bridges has been almost entirely one of accommodation to train weight. This was true of the gradual evolution through wood to iron to steel. And, in turn, these experiments with materials, in themselves the result of the railroads' preoccupation with the problems of stress, were directly responsible for the development of our bridge forms. The arch, in stone or wood, and the beam preceded the locomotive; but the truss, the cantilever and even the suspension as we know it, had to wait on iron and steel.

The truss seems to remain the most usual form, even today. Heavy steel girders and cast concrete slabs have taken its place for short spans; but for the great majority of bridges, the truss is standard. Our better engineers deplore the fact, but the railroads answer, a challenge to produce better bridges at a similar low price, is still the final one.

Among modern trusses, none has attained the beauty or the dramatic appearance of Rock Island's Samson of the Cimarron, a 1200-foot steel deck truss set on concrete piers across the immense and picturesque valley of the joint Kansas-Oklahoma border.

Later developments, such as the use of reinforced concrete with the accompanying return to the arch viaduct, and the experiments now being made with prestressed concrete and with aluminum, represent the same effort which originated the truss and the other forms in steel—an effort to reduce the weight of the bridge structure while retaining the necessary strength to bear train loads.

NEW HORIZONS
For the Vista Dome Traveler

By E. M. KENNEDY
Associate Editor
Railroad Magazine

ONE MILLION people have traipsed through General Motors' *Train of Tomorrow*. They've climbed to its upper decks and imagined panoramic views of Grand Canyon; they've lounged in a dry tavern; they've even worn out two sets of carpeting in its observation compartment. The visitors have been having fun, lots of it. Because for the first time since 1941, both builders and railroadmen have been putting on a big show for the public, to lure potential travelers back to the romance—and the comfort—of the rails.

Along its back-roads route from Chicago to the East Coast and through the South, smalltown folks have been turning out with their box cameras, their candids, and their big-eyed youngsters. The swirl of silver-and-blue, taking it easy down the single track, might as well have been a comet in slow motion, not likely to appear again. In the big cities, however, observers were less starry-eyed. They wanted to know where and when they could buy a ticket to ride this luxury-liner. How soon was *tomorrow*?

If you're not partial to scenery in the Eastern Time Belt, hop aboard a Burlington *Morning* or *Afternoon Zephyr* and you'll soon see what all this whoop-la's

TRAIN OF TOMORROW: designed by General Motors; constructed and equipped by Pullman-Standard, six GM divisions and 73 supply houses; scheduled for runs down the main tracks and branch lines of an admiring America. The train itself ***below*** is a mechanical experiment. Since its first non-test run last May, designers have even modified interior arrangements to increase rider comfort, at the suggestion of some of its million visitors

BREAKFAST in the back yard. Barred from Grand Central by low clearances, the ***Train of Tomorrow*** was stationed in New York's 61st Street rail yards, where NBC radio stars, Jinx Falkenburg and Tex McCrary, broadcast and televised their daily program, taking morning coffee in the Astra Dome

Courtesy of NBC Television

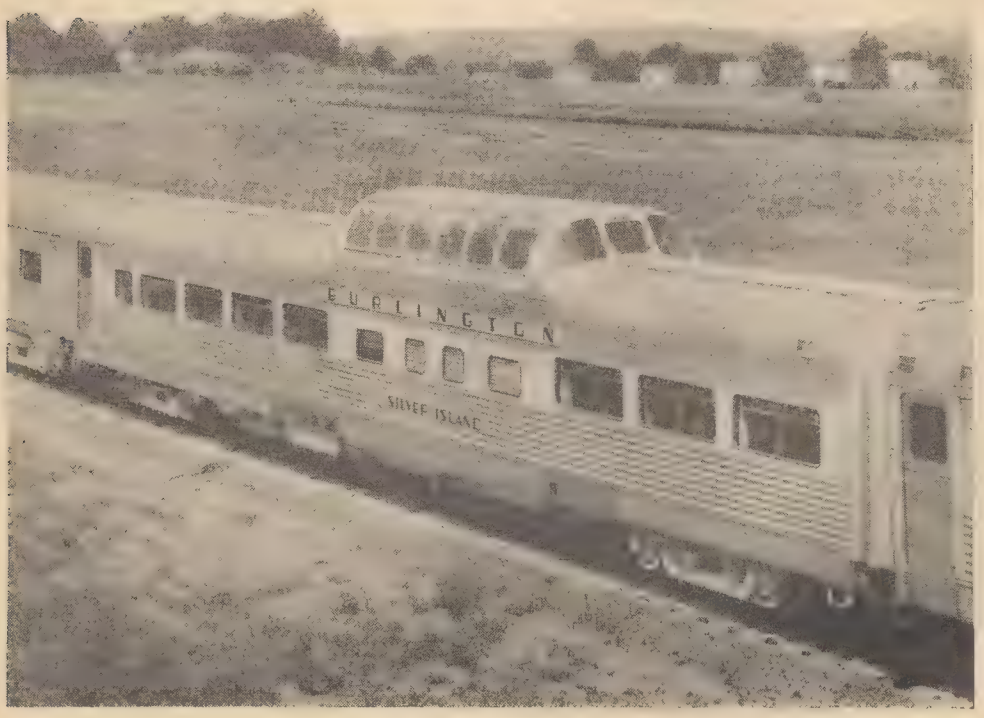
about. The Chicago, Burlington & Quincy is the first road to equip two advertised trains with Budd-built Vista Domes, tomorrow's railroading today. The "blister" itself needs little explanation of its five-way visibility: that's been heralded both east and west of the Mississippi. What is news is the Budd Company's production chart for dome cars: forty-nine ordered, eleven of which have already been delivered. Once completed, these will be billed to the Burlington, the Denver & Rio Grande Western, the Western Pacific, Missouri Pacific and one lone easterner—the Chesapeake & Ohio.

How the glass deck was originally conceived is the story of GM Vice-President C. R. Osborn's trip from Chicago to the Pacific Coast in 1944, aboard a Dieselized freight. Impressed by the visual advantages of the cab and cupola, Osborn became so enthusiastic about the possibilities of a clear top storey that GM completed the design and a model, offering its blueprints free to all rail officials. That same year Ralph Budd revamped a Burlington coach in his company shops to embody the new principle: his *Silver Dome* became the blister's proving grounds, tested in the extremes of climate and to the strength required by the impending threat of rock slides throughout the West.

The *Silver Dome* was a success. Orders were placed but held up by shortages. Then in May, 1947, the GM *Train of Tomorrow* ran down the track.

Actually, the cupola-topped coach is not as new as GM would have the public believe. Apart from such pioneer efforts as the CPR's twin-domed 1911 car, the Budd Company whipped together a rough wooden mockup of a streamlined domer back in 1934. At that time Class-1 carriers ignored the Budd version. Then eleven years later—June 18, 1945—Budd accepted an order from the Burlington for its first Vista Dome car.

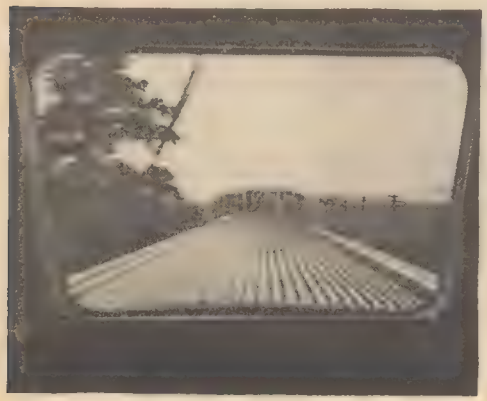
FIRST of forty Vista Domes for the Burlington System, the *Silver Island* rolled out of Budd's Red Lion plant in Philadelphia on to a scheduled Chicago-to-St. Paul and Minneapolis run



ASSEMBLY LINE for "blisters" at Budd, producer of the first dome cars for regular train service. Budd has tested body strength for half a million pounds at the buffer, and an 800,000-pound load at the coupler, without adding so much as a crack to a window

PENTHOUSE PANORAMA. Aloft in an upper deck of glass and stainless steel—15 feet, 10 inches, above rail level—24 passengers can go sightseeing in air-foam chairs, without laying down extra fares for the ride. Low windows place heads and shoulders well above the roof line for easy visibility

RIGHT: Rounding a bend in the Lehigh Valley near Rockfort, Pa., on a press run between New York City and Wilkes Barre, Pa., over LV trackage, sponsored by the Burlington last July



CLEAR WINDOW out, poor view in. If you plan on keeping an eye on the boys up front, take a quick gander at the shadowy figures in the deck *left* and give up the notion. The reason: green-tinted thermopane glass, a product guaranteed not to fog, to resist heat and glare, to prevent sunburn. Yet in spite of thermopane's tossing out the sun's infra red rays, air-cooling the coach was still a problem. It required a stepup of 24 percent over the typical coach demands in temperature reduction, which has meant 10 tons of air-conditioning equipment in the Vista Dome car

VISTA DOMES offer comfort on both levels. The interior of the lower section provides 54 reclining seats, foot rests, wide windows, flourescent lights and double the washroom facilities of a conventional coach. Dropped center sill allows ample headroom in the center compartment

SOUTHERN PACIFIC of MEXICO

THE WELDING of a continent with a spike maul at Promontory, Utah, in 1869 had a far greater effect on rail history than many of us realize today. Had that event happened a few years later, the Santa Fe instead of the Southern Pacific might have captured the strategic position in California's rail routes, and the Sonora Railway

STEEL ASCENT through the Barrancas. Eliminating a 240-foot drop to river level, SPdeM's great viaduct over Arroyo Salsipuedes stretched Espee coastline steel from Portland, Ore., as far south as Mexico's Guadalajara

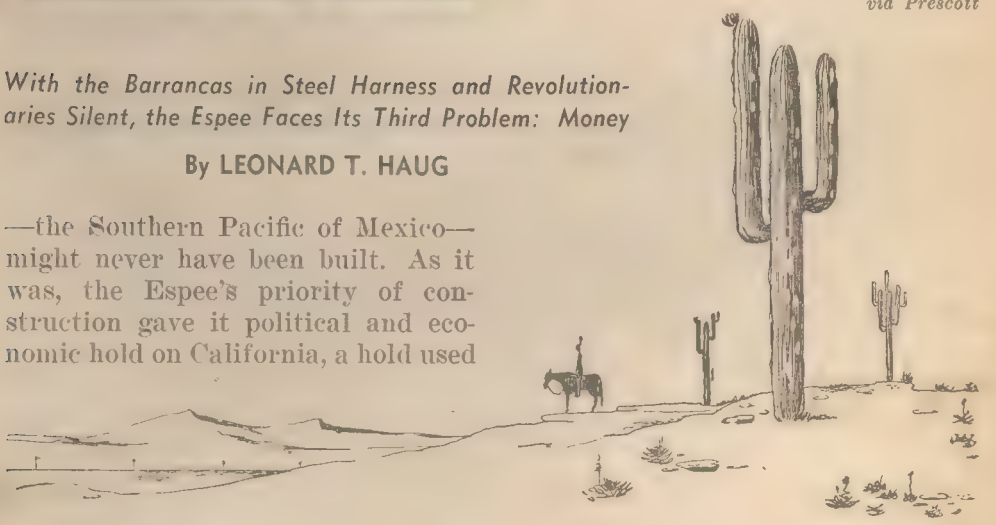
With the Barrancas in Steel Harness and Revolutionaries Silent, the Espee Faces Its Third Problem: Money

By LEONARD T. HAUG

—the Southern Pacific of Mexico—might never have been built. As it was, the Espee's priority of construction gave it political and economic hold on California, a hold used without hesitation to keep competition out. It also made it possible for the Espee to build a continuous line between Portland, Oregon, and Mexico's lofty Barrancas, the longest coastline carrier in the United States.

In 1879, the Santa Fe was stopped at Needles by a Southern Pacific thrust eastward from Mojave for the express purpose of halting construction. While to the south, the Espee had reached Yuma in April, 1877, and was on its way eastward to El Paso. With only scorching alkali wastelands and precipitous Sierras to the northwest and no Parker cutoff then in prospect— the "Peavine"* hadn't been built—the search for a Pacific outlet promised to Santa Fe shareholders was turned south. The AT & SF determined to find a port outside California, thereby sidestepping the difficulties that were sure to result from op-

**From Ashfork to Phoenix via Prescott*



posing the powerful Southern Pacific on its home ground. There was but one way to turn—Mexico's Gulf of California.

Engineers and surveyors were sent to Mexico to plan the new route, while a Santa Fe representative headed for the neighboring Capitol to sound out Porfirio Diaz about a government construction subsidy. The subsidy was granted, calling for payment of 11,265 *pesos* per mile built, though the eventual total paid was less than half that sum. The Santa Fe's original surveys called for a line directly southward from Deming to Douglas, then on into Mexico at Agua Prieta, continuing down through Guadalupe Canyon along the present route of the Nacozari Railway. From Fronteras, the road was to turn westward across the mountains to Bacoachic on the Sonora River, and pass through the Sonora River Valley via Arispe and Ures to Hermosillo. Chief Engineer Ray Morely found an easier route, however; it was straight north from Hermosillo to Benson on the Southern Pacific.

After reaching Las Vegas, N. M. in July 1879, the Santa Fe was already building southward toward Douglas when the decision to follow a more westerly route made an agreement with the Southern Pacific financially imperative. The only alternative was duplicating the Espee line through territory that could not support two competing roads. Since the Mexican carrier would in no sense be competitive with the Southern Pacific, mutual interest here outranked the antagonism elsewhere. An agreement was made, providing for joint operation of this trackage. This gave a bridge between the Santa Fe's southward line and its New Mexico & Arizona Railroad between Benson and Nogales. Following this decision, work was begun south of the Mexican

border; meanwhile the Santa Fe and Southern Pacific completed their lines into Deming, N. M., where they met in March, 1881.

The construction of the Sonora Railway was started in May, 1880, with the landing at Guaymas of one engine, twenty flatcars and a shipload of track supplies—all brought around Cape Horn in a Santa Fe chartered vessel. The equipment was first unloaded on Ardilla Island in the land-locked Bay of Guaymas, where Construction Engineers Morely and Coleman had built a wharf connected to the mainland by a 1000-foot trestle. Morely, who was in charge, hired Mexicans for the job because they were the only large labor force available. By the end of 1880 the grade was complete to Hermosillo, with thirty miles of track in operation out of Guaymas. Practically all supplies and equipment still had to be shipped around the Horn like the first load, however; yet despite this, by 1881 there were ten engines, seven passenger cars and 181 freight cars in operation.

Construction was rapid through the semi-arid country, for none of the first grades encountered were more than one-half of one percent, which involved little groundwork. Sixty-two miles were laid north of Hermosillo in less than two months—over a mile a day. At this point the Santa Fe's expenses, excluding equipment, totaled $1,789,991.48. But the picnic was over as soon as the Rio Magdalena was reached, about forty-five miles below Nogales. Here the line was to follow the river canyon approaching the summit at Encina. It required some seven-degree curves and one percent grade for thirty miles to Agua Zarca, and then a short but steep climb to boost the trains over the hill into Nogales.

Meanwhile the New Mexico & Arizona Railroad was moving slowly southward from Benson toward Nogales, winding through the tortuous territory that is now the abandoned Patagonia-to-Calabases section. The NM&A reached the border on September 26, 1882, while the Sonora Railway coming north entered Nogales only a month later, on October 25th. The Santa Fe had finally reached its goal—a western port—though only with the help of the Southern Pacific, the line which had made the circuitous trip necessary. The original trackage included 87.78 miles from Benson to Nogales and 262.41 from Nogales to Guaymas, totaling 315.17 miles.

THE CONSTRUCTION of Mexico's West Coast carrier really caught fire when E. H. Harriman replaced Senator Stanford and his pioneer Central Pacific associates as guiding hand of the Southern Pacific. New policies were established and a new group of rail projectors were placed in key positions. Among the newcomers was Colonel Epes Randolph, a veteran of the Confederate cause. A construction engineer of long experience and formerly general superintendent of an eastern road, Randolph was appointed superintendent of the Yuma and Tucson divisions in 1895, with headquarters at Tucson. There, in close touch with the Santa Fe's Mexican business, he became enthusiastic about the rail possibilities of Mexico and approached Harriman about them.

Randolph had little difficulty selling the idea to his boss. Harriman was always awake to schemes with a profitable future. Accordingly, it

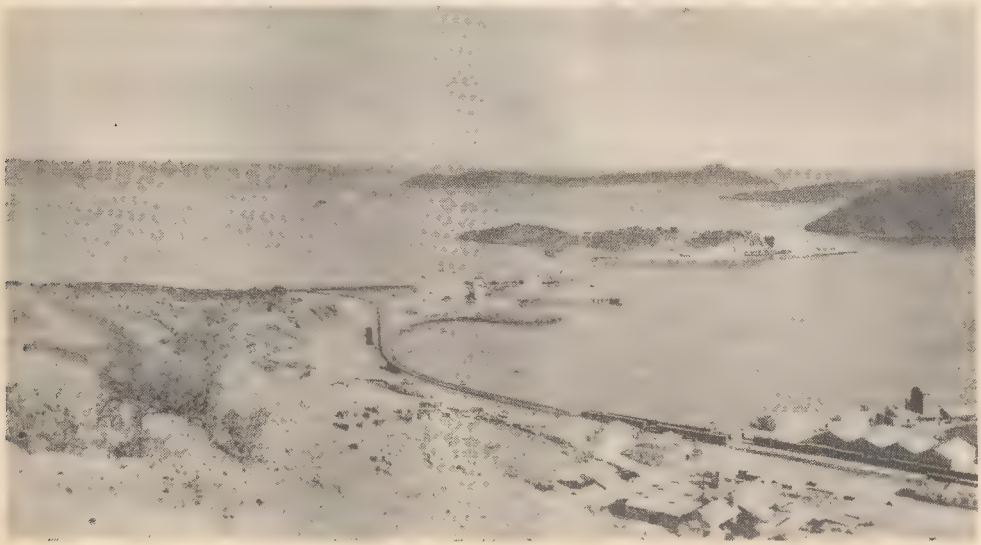
was decided that a deal for the Santa Fe's Mexican extension was worth a minor sacrifice in California. So on July 5, 1898, a reciprocal lease was negotiated, providing the Espee with the necessary operating rights, in return for granting the Santa Fe exclusive operation of the Southern Pacific Needles-to-Mojave mileage, previously used on a restricted basis, to reach the AT&SF Cajon trackage between Waterman (now Barstow) and San Berdoo. The latter line had been built between 1884 and 1885 only by grace of the Espee throttlehold on its connections. With the signing of the 1898 lease that section of the Mexican road north of the border, the old New Mexico & Arizona, became part of the Espee's Tucson Division and has remained so ever since.

Many track improvements were made on the Sonora Railway following the lease. Bridges and culverts were rebuilt in 1901 while the Santa Fe completed its last rail venture in Mexico—the Cananea, Rio Yaqui & Pacifico Railway, a line connecting Naco on the border with the copper mines at Cananea. This 38-mile shortline was purchased by Southern Pacific in 1903, and its concessions used for later construction. In 1904, Harriman prepared for greater expansion in Mexico by sending J. A. Naugle from Guaymas to Guadalajara to look over possible routes. Naugle's report resulted in the formation of the Southern Pacific Railway of Mexico under Epes Randolph, who had meanwhile been named President and General Manager of the Cananea, Rio Yaqui & Pacifico.

The new company began laying track southward in October, 1905, starting at Empalme, six miles north of Guaymas on the Sonora Railway. The 117-mile road to Navojoa was finished May 12, 1907, under the Cananea, Rio Yaqui & Pacifico con-

BORDER JUNCTION. Busy SPdeM yard *opposite* is Nogales, where equipment from Tucson, Ariz., is transferred to the Mexican subsidiary. Down the center track, leased Engine 2513 reverses for a string of coaches to turn them on Empalme de Lomas wye

ARDILLA ISLAND, in land-locked Guaymas Bay, starting point for the Sonora Railway in 1880. One engine, twenty flatcars and a shipload of track supplies were lightered to Ardilla, then hauled across to mainland Guaymas via a 1000-foot trestle



cession; the same franchise was used to build the Alamos branch in 1907, the Corral-Tonichi branch between 1907 and 1910, and the 78-mile Lomas-Del Rio connection, constructed between 1907 and 1908.

Under a Southern Pacific Railway of Mexico concession, work was started on a main line between Mazatlan and Orendain Junction in 1907, track being laid from both terminals. A large part of the supplies was landed at Mazatlan, where the road was pushed north as well as south. Since no suitable timber grew in the neighborhood, all ties were imported from northern California and Oregon. Supplies and equipment landed at Mazatlan—including steel shipped around the Horn from Europe—were all lightered one-half mile to shore.

Forces working south from Navojoa met those coming north from Mazatlan early in 1910, giving a through line from Benson, Arizona, to Yago, 146 miles south of Mazatlan. But the farther south the line was projected, the more difficult the terrain became. The next fifty miles took steep grading and curvature to climb Roseta Hill and on into Tepic, 196 miles beyond Mazatlan. This section was completed on February 5, 1912.

With the formidable Barrancas ahead, construction work stopped. Track-laying gangs from Orendain Junction had advanced northward about thirty-five miles to Magdalena* in 1910 and pushed on to La Quemada in 1912, yet that town was fated to rust through coming years as the 1913 railhead. As the thunder of revolution started to rumble, American magnates began worrying about the security of investments south of the border.

OPERATION and maintenance of existing parts of the road were badly handicapped by the political

*There are two Magdalenas on the line, in Sonora and Jalisco. Magdalena, Jalisco is meant here.

turmoil of the ten years following 1910. Each faction took its turn at destroying bridges and wrecking equipment. From 1912 to 1921, a period of nine years, the 105-mile section between Acaponeta and Tepic saw only five months of operation. The State of Sonora took a hand at operating the road in 1917, but was as powerless to run it at a profit as the Espee had been. By the time the shooting was over—in 1920—damage claims totaling thirty-two million *pesos* were lumped on the desk of the treasurer for the new Obregon Government. Any attempt to resume construction before some reparation had been made would have been pointless.

On March 2, 1923, an agreement with the Mexican Government was reached covering the compensation for damages, the repair of wrecked sections of track, and the terms of new rail construction. Provision was made for the complete rebuilding of the Tonichi and Alamos branches. Shortly afterwards the work was commenced on the remaining 103-mile gap between Tepic and La Quemada, a sector costing over twelve million dollars and more than four years' effort to complete.

A great gorge in the volcanic-ridged Barrancas lay athwart the path of Mexico's Southern Pacific. There was no road over but around, and in spite of the mammoth undertaking which involved 25,000 feet of heavy tunneling, with towering steel viaducts to carry the line across from one tunneled spur to the next, the main line was forced to ascend 1249 feet in the space of only 104 miles.

In some places, more than four thousand Mexicans at a time toiled with headstraps and baskets to move earth from the diggings. Altogether, twenty-six tunnels were bored in the Barranca section, an average of more than one per kilometer.

Courtesy of Southern Pacific

ONE GOOD REASON why the Sud Pacifico de Mexico was 47 years a building: the mountain territory between Ruiz and Barrancas where rails rise 4188 feet in 147 miles

Construction of the "Sud Pacifico de Mexico" came to an end at a fitting place for so vast a project. For the giant Arroyo Salsipuedes Viaduct where the last spike was driven on April 15, 1927, aptly symbolized the ambitious nature of Harriman's

dream of a Mexican empire. Two days later train service was inaugurated on the new 1095-mile rail route from Nogales to Guadalajara.

During 1909, the period of most active construction, the Southern Pacific Railroad Company of Mexico was incorporated. Except for the word "railroad", its title was the same as that under which its original concession had been obtained from the Mexican government. The authority to charter a line between Guadalajara and Mexico City was also granted in 1909. However, this project was never completed by the Espee.

After the 1909 incorporation, the parent road handled the Mexican subsidiary from its Tucson headquarters until 1927, when its general offices were moved to Guadalajara. Mexican operations have been independent from the Southern Pacific proper since 1909, but its key officials have always been connected in some way, as in the case of Col. Espes Randolph who was president of the Mexican lines from 1911 to 1921 while holding the same position on the Arizona Eastern Railroad, an Espee affiliate.

THE original 1898 lease agreement was made permanent with a change of ownership on December 27, 1911, with titles on the Sonora Railway and New Mexico & Arizona transferred to the Sud Pacifico de Mexico and the Southern Pacific respectively, on June 30, 1912. This paved the way for absorption of the Sonora Railway into the SP de M. The transfer also gave the Santa Fe permanent title to those parts of its present Arizona Division known as the Second and Third Districts—the Needles-Barstow, Calif. and Barstow-Mojave sections, respectively.

When the Southern Pacific absorbed the El Paso & Southwestern in 1924, it picked up the 76-mile Nacozari Railroad from Agua Prieta to Nacozari. This line had been built between 1901 and 1904 by Phelps-Dodge to handle ores and concentrates, and is believed to have been operated by the SPdeM for several years. At present the Nacozari operates under its own name and management, though owned by the Southern Pacific.

The old New Mexico & Arizona Railway from Benson to Nogales no longer feeds the Southern Pacific, and the remaining branch from Fairbank to Patagonia is a relic of the past with only local freight service. The line from Patagonia to Calabases has long been abandoned, its unfavorable grades and curvature having been outmoded by the Espee's Tucson-Nogales route completed in 1910. From Tucson to Sahuarita, this road used part of the old Twin Buttes Railroad bought April 18, 1910; the remaining gap to Calabases was newly built by the Southern Pacific in 1909 and 1910.

Southern Pacific's main line has eight districts plus the Del Rio, Naco and Tonichi branch lines. The minor branches of Hermosillo, Guaymas, and El Dorado are run as parts of mainline districts. Operations are governed by a standard rulebook with timetable and train orders, most signals on the line are station order boards. Since only Mexicans are employed in train service, all orders are given in Spanish.

Sidings vary in length from six cars to one-hundred-five, with a 60-car siding every third or fourth station. The average freight trains in March and April, 1946, totaled about

SAN MATEO, Pullman plush for *El Costeno.* stands in the yards at San Blas

forty cars, and approximately four trains were scheduled daily in either direction covering the greater portion of mainline mileage. The road's own freight equipment includes all types, with many arch-bar trucks still in use. However, the majority of freight moves in the newer equipment of foreign roads, since a large amount of the traffic is bound either to or from the United States.

Mixed and Pullman trains run on alternate days, so that the total passenger service is one train daily each way except where railbuses are operated. Pullman service about equals that in the United States, although there is often not enough space to go around, all berths being booked up solid in advance. As the Southern Pacific of Mexico offers no dining-car service, meals aboard sleeper trains are served by a Pullman-operated cafe car designed with a kitchen in the middle. Trackside foodstands provide the only other opportunity of buying your meals enroute to your destination—short of a prolonged stopover, that is.

People riding the dinerless mixed train often bring along big sacks of groceries and blankets. The news-butcher's fare is limited to beer and sandwiches, and boxcars ahead make steam heat an impossibility. In recent years the non-Pullman equipment, including many standard 60-foot steel coaches and baggage cars, generally has been leased from the parent road. Most coaches have had plush seats replaced by a fixed wooden type, while floor composition has given way to rough cement. Coaches on the SPdeM are all second class and, because of the equipment shortage, are jammed to capacity.

The best passenger trains are still handled by old Mongul-type locomotives, classes used only in yard and local freight service by the Espee system north of the border. The best engines in operation are light ten-wheelers, leased for passenger train service south of Mazatlan. Among these are Numbers 2313, 2317, 2324, and 2325. Switch engines include the old 1082 and 1099 used at Empalme and Mazatlan, while the SPdeM's best freight locomotives are Consolidations of the 2500 and 3400 classes. Older types include twelve-wheelers and a few light 2-8-0s with Baker Valve Gear.

The light Mikados leased from the Espee during World War II have all returned to the United States; they

ALCO-BUILT Number 27 at Nogales, Ariz. Mexico's Southern Pacific handles the city's interchange, which in season means upwards of 100 cars

HARRIMAN picked Moguls for his Mexican Espee, thirty of them between 1908 and '09. Number 514 *above*, delivered to Cananea, Rio Yaqui & Pacifico by Brooks, transferred to the Houston & Texas Central roster in 1912

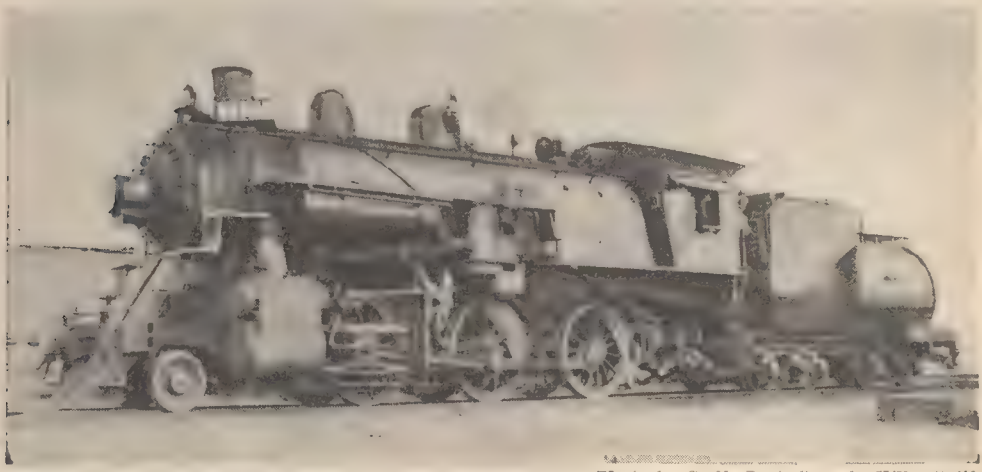


Photo by G. M. Best, Beverly Hills, Calif.

WORLD'S ten heaviest Moguls, leased to Sud Pacifico before the war, returned to Los Angeles after ripping up Mexico's track. Number 523 in SP yards after reassignment

SIX-STALL roundhouse at Guadalajara, southern terminal of the SPdeM. Passengers for Mexico City cover the remaining 381 miles on the trackage of the National Railways of Mexico

NUMBER 505, a 94-ton Mogul, on the roundhouse lead at Empalme. Major division point, Empalme has the road's largest shops, two transfer tables, plus an enginehouse for 32

were too heavy for Mexico's main line, which consists chiefly of 65-pound rail. While in service, they put in most work on the Barranca section. Other power includes the 1400 and 1401, 0-8-0s acquired from the former El Paso & Southwestern, now used at Guadalajara and Mazatlan, and three rail motor buses.

Before the war, the Sud Pacifico de Mexico had America's most modern Moguls—the 520 to 529—under lease. These locomotives had been built new at Southern Pacific's Houston shops in 1929 and 1930. But with a weight of 181- to 189,000 pounds on the drivers, the Moguls ripped up Mexico's track. As a result, they were reassigned to the Pacific Lines, and sent to the Los Angeles shops to be overhauled. The 1944 total of equipment was 842 freight and 65 passenger cars, while early in 1947 there were 132 locomotives of which 104 were leased.

Enginehouses are located at Naco, Lomas, Carbo, Empalme, Navojoa, San Blas, Culiacan, Mazatlan, Ruiz, Tetitlan, and Guadalajara, with general shops at Empalme and a repair shop at Mazatlan. Most of these division points have small yards of three or four tracks. The end of track at Cananea, 5265.5 feet above sea level, is the highest point on the SPdeM, and the 2.75 percent grade ascending to it, the steepest on the system. The right-of-way east of Portezuelo on the Del Rio Branch climbs a 2.6 percent grade, but only on Roseta Hill do mainline grades exceed two percent.

All branch lines and sidings are laid with 65-pound rail, as is most of

the "big steel." The exceptions are the 90-pound rail extending twenty kilometers south of Lomas, and from Roseta to Aguirre on the big hill. Seventy-five pound steel is in service between Aguirre and Empalme de Orendain except for one short stretch; the eighteen kilometers southward from Ahuacatlan weighs eighty pounds to the yard on the jointly-operated track of the National Railways, all rail is seventy-five pounds.

MULTIPLE-SPAN bridges cut some of the kinks out of the Southern Pacific's mountain straddling. Totaling more than four miles of steel, they include the Rios Sonora, 1065 feet; Yaqui, 1935 feet and 22 spans; Mayo, 1631 feet and 4 spans; Fuerte, 1000 feet and 8 spans; Ocaroni, 702 feet; Sinaloa, 1004 feet; Mocarito, 866 feet; Culiacan, 1587 feet and 16 spans; San Lorenzo, 2248 feet and 32 spans; Elota, 1553 feet and 13 spans; Piaxtla, 1284 feet and 16 spans; Presidio, 1470 feet and 21 spans; Rosario, 1400 feet and 20 spans; and Santiago, 2596 feet and 9 spans. The worst section was constructed through the heaped-up Barrancas of Nayarit, which delayed completion of the spectacular route until 1927. Then two years later, revolutionaries blasted no less than 199 trestles, comprising 18,808 feet in length.

Nogales, northern terminus of the SPdeM, is served by a 3-car daily passenger train from Tucson, usually powered by an Atlantic. The 66-mile branch follows a sparsely settled agricultural and cattle raising region upgrade over a broad plain, funneled by approaching ranges of hills into the valley of Nogales. At Calabasas, almost ten miles south of the border, you can see the abandoned roadbed of the old New Mexico & Arizona winding eastward through rugged hills. It is there that big 3700s of the Espee are turned, when the Mexico's tomato season schedules 70-car trains out of Nogales; American power is no longer permitted to cross the line and turn at Lomas wye.

LEASED Engine 1804 takes a 25-minute stopover at San Blas with the daily passenger train. South of Mazatlan, heavier power is used

The Nogales yard of the SPdeM has a 1.6 percent grade. Five tracks

are sufficient to handle the traffic, except where the rails fan out to include the yellow-stucco depot and a freight station. The yard is operated separately from that on the American side, for a steel border fence down the main street rigidly divides the town and rail facilities into two parts. An SPdeM goat handles interchange, up to one hundred cars a day in the crop season; but she must stop for inspection each time she crosses the line.

Mexico services Nogales by the Pullman train *El Costeno* run Monday, Wednesday and Friday, with a consist of one baggage car, three coaches, and four Pullmans. The alternate *mixto* arrives and leaves on Tuesday, Thursday, and Saturday. Boxcars are heavy equipment in its lineup, including baggage and express. Coaches and a solitary Pullman bring up the rear.

Paradoxically, the West Coast of Mexico route touches deep water only at Empalme and at the ends of the Guaymas, El Dorado and Mazatlan branches. Yet it does traverse almost every other kind of country known to railroad construction, from arid hills to lush river valleys, deserts to jungles, up green tropical mountain slopes, through the black volcanic Barrancas and among straw-colored hills to the final lap of joint track along the mountain plateau of Jalisco.

Leaving the sloping Nogales yard the track continues to ascend southward at 1.6 percent past Lomas wye, junction of the Del Rio branch. The three-tracked Lomas enginehouse about half a mile further on is the servicing point for power based at Nogales. Here the grade increases to two percent among barren hills, reaching the summit at Encina—4288 feet high and 419 feet above Nogales—where a stop is made to cut off the helper.

With mountains eastward in the distance and broken hills on our south and west, the right-of-way drops two percent for the short run to Agua Zarca. It then follows the curving, tree-shaded banks of the Rio Magdalena on a one percent down grade to Imuris, where the run levels off to a negligible sloping. Fifty-five miles south of Nogales is Magdalena, a pastoral town whose attractive stucco station is probably the most modern on the SPdeM. After crossing the green Magdalena Valley, we pass Llano's adobe village approaching lowering hills where the grade again tips downward, circuiting the west side of a bluff. As we near Benjamin Hill the country flattens out, giving way to a sloping rock desert with buttes in the far distance.

Benjamin Hill is the junction point of the new Sonora-Baja California Railway, now under construction by the Mexican Government to provide a 325-mile, all-Mexican connection with the Inter-California Railway at Pascualitos. In April 1946 there were four great stacks of new 90- or 100-pound rail piled up at Benjamin Hill, enough for about 180 miles with supplies arriving regularly. The opening of this line will divert much of the traffic passing through Nogales, providing a direct route between California and Mexico.

FROM Benjamin Hill to Hermosillo, the rock desert is broken only by the subdivision point of Carbo, a lunch stop. Carbo boasts a 3-track, stone enginehouse. Union, about 140 miles from Nogales, is the junction

point for the short Hermosillo Branch, also the site of a new dam which is part of a great irrigation and power project, involving line relocation and a new bridge over the Rio Sonora. The branch to Hermosillo terminates in a complete loop,

miles west. This was the starting point of the original Sonora Railway.

The mixed shuttle train operating between Empalme and Guaymas—seldom used by Americans—provides a marvelous view of jutting penin-

SUD PACIFICO'S big hook. Back around 1929, its mountain rescues were decidedly curtailed when revolutionaries blasted out 199 trestles

used by all trains. This town provides a fair amount of traffic, since it is an important cattle-raising center.

Empalme, on the Gulf of California, is a major division point and site of the SPdeM's largest shops and roundhouse. The shops have two transfer tables and a roundhouse of about thirty-two stalls. The town itself is screened from the tracks by coconut palms on the east and a railroad boarding house opposite the depot. The depot is an old frame building containing the crew dispatcher's office, backed on the gulf side alongside a few weathered shacks and a beer joint. There are no restaurants in town and not even one hotel. Taxis meet all trains, and people stopping over go to Guaymas, five

sulas, white beaches and the blue Gulf of California. From a wye south of Empalme Station, the line crosses an inlet and follows an indented shore line, climbs a short two percent grade to eighty feet above sea level. On the west of the ridge, it drops down a 2.5 percent slope into Guaymas, where trains follow the wye's south leg and reverse, to back the remaining half-mile into the station.

Besides its importance as a fishing center and petroleum shipping point, Guaymas offers one of the finest landlocked harbors on the West Coast. Nearby is the Southern Pacific's Playa de Cortes Hotel, operated until 1945 by its West Coast Hotel Company but now leased and privately operated by Chicago interests.

The Playa de Cortes is out of town and accessable only by taxi, with rates of $12.50 a day for a single patron. The local restaurants have taken the hint, so Guaymas is a *mucho* expensive place.

DOUBLE-DECK railbus at Mazatlan, one of three providing passenger service to Acaponeta, 94 miles southward

From Empalme to Mazatlan, the Sud Pacifico has an easy run through flat forests and jungles, with occasional agricultural regions and hills to the east. This 200-mile stretch includes the districts of Navojoa, San Blas and Culiacan, where steel bridges span the numerous broad river beds. In this section, also, are several connecting lines, besides the SP's own branches. The Rio Mayo Railway between Navojoa and Yabaros is a 46-mile, standard-gage line, unique in the fact that the the landowners along its route did the grading themselves under a co-operative agreement. At present, it owns four engines, five passenger and thirty-seven freight cars.

South of the 8-span Rio Fuerte Bridge is a gate-protected crossing where all trains stop, the gate being left in the position of last use. This is the isolated Kansas City, Mexico & Orient, surveyed to connect its eastern section at Sanchez with Topolobampo on the Gulf. But the gap through the mountains was never finished. Back in 1940, however, the Mexican Government took over construction. The line is being spearheaded through the hills, and should soon be completed.

The 40-foot cantilever spans of the Rio Culiacan bring SP de M rails to another gate crossing. This belongs to the Ferrocarril Occidental, where the Southern Pacific curves sharply to the right into Culiacan Station. This town is in an important vegetable-raising area. A good part of its produce is shipped to the United States.

Approximately 140 miles further on is Mazatlan, built around a peninsula on the Pacific Coast. Served by a short branch line, the city receives its passenger trains in reverse, all coaches being backed into the station. Every type of engine frequents Mazatlan, for a change of power is customary. Heavy 2-8-0s and 4-6-0s are used on the mountain divisions to the south.

Local freight power serving the new cement works at Marmol, about nineteen miles north, is also based here. For the daily local passenger service to Acaponeta, there are three double-deck autobuses fitted for rail operation. Mazatlan's greatest fame stems from its bathing beaches. These strands have made Mazatlan the setting for numerous south sea movies.

THE MOST interesting part of Sud Pacifico de Mexico territory is its ascent of Roseta Hill and the Barranca mountains. Hills around Ruiz—870 miles below Nogales—

give the first indication of a change in the flat country below Mazatlan. About nine miles south of Ruiz, the main line crosses the 2596-foot Rio Santiago bridge, the road's longest. The rails approach a high hill on the left, and following its base at a half-percent rise, they sight the narrows of a verdant canyon.

Passing through Tunnel 1, the grade mounts the green hills to the west near Roseta, a small helper station with boxcar depot and two spurs. The major grade of the system starts here with a 2.4 percent climb for about twenty miles to Mora, near Tepic. The track winds around the canyon walls, curving among precipitous hills to top a ridge at Escobar, where vivid tropical brush closes in on the right-of-way. A common operating practice is to couple Consolidation helpers behind the rear car and cut off on the fly at Mora, to follow the train light into Tepic.

Tepic is a lunch stop on a rolling mountain shelf whose ups and downs the line follows through four tunnels to Tetitlan, fifty-two miles down the track. Leaving Tetitlan, it ascends around the arid sides of a sloping saucer-like valley, cresting the great Barrancas rampart. Two bores near Barrancas Station itself take the roads to the edge of a great depression, ringed on three sides by towering black peaks and jagged spurs. A twelve-mile succession of tunnels and viaducts carries it through ridges and over chasms, round the south side of the gorge at about a one-percent grade. Many of the viaducts and tunnels are visible across the canyon before being reached.

Between Arroyo Portezuelo and the crest of Tunnel 32 there are twenty-four tunnels; two are almost 3000 feet long, four others exceed 1000 feet. In this same section are seven major steel viaducts, three topping 300 feet in length and 120 feet in height to cross the Arroyos Palmarito, Las Tusa and Salsipuedes. Greatest of all viaducts is that spanning Arroyo Salsipuedes at 240 feet above the riverbed. Sloping at a one-percent grading, its 860-foot length is made up of fifteen deck-plate girder spans. The six 80-foot center spans are supported on seven steel towers, the last hundred feet curving more than seven degrees to plunge the line into Tunnel 20.

SPdeM STATION in stucco at Nogales. Border fence at rear marks the limits of Arizona

As Tunnel 32 and the Barrancas are finally left behind, the SP de M drops downward through La Quemada and over another minor summit to an expanse of plateau and rolling hills. Tunnels 33, 34, and 35 are near the end of the one-percent downgrade in this territory. At the bottom of the sag is Tequila, a famous source of Mexican firewater hugging the sides of a deep valley to

the left. From then on, the engines boost trains toward the physical terminus of the Southern Pacific at Empalme de Orendain, 4730 feet above sea level. The station here is a tile-roofed coach between the two converging lines. Trains make a short stop to change to the National Railways of Mexico's Central Time.

The remaining mileage into Guadalajara on the N de M's San Marcos District winds partly upgrade to Pueblitos, requiring 2-8-0 helpers on freight trains from both Guadalajara and Orendain. On a windswept plateau circled by mountain ranges, Guadalajara is Mexico's second largest city, the capital of Jalisco. This important rail center is linked by the N de M with Manzanillo southward on the Coast, Mexico City to the east, and the minor towns of San Marcos and Ameca to the west. Here the SP de M maintains a five-storey ornate stone general office building, which overlooks a park just about two blocks from the station.

Guadalajara's eight-track open passenger terminal is the property of the National Railways and is used jointly. A mile southward—down a double-tracked alleyway—yard trackage triangles around the National's walled-in shops, pointing eastward toward the airport, westward toward the yard and the six-stall roundhouse of the Sud Pacifico, a mile down the San Marcos line. Here the SP de M does its own switching, stores its service equipment, and handles coach cleaning and car repair work, 1103 miles south of the border.

PRESENT officials at Guadalajara include J. A. Small, President; A. M. Fernandez, General Manager; and L. G. Hoff, General Traffic Manager. It is generally conceded that they face some knotty financial problems, for the Southern Pacific of Mexico has consistently operated at an annual loss, except during the recent war years. Mexico, of course, shared in this traffic boom. But back in 1940, its parent system refused to weight its own finances with the bonded debt remaining from the construction days. On January 1st of that year, the Southern Pacific withdrew all further monetary aid, forcing the SP de M to live within its own financial means.

The net operating incomes of $380,000 in 1941, $1,140,000 in 1942, $1,704,000 in 1943 and $34,600 in 1944, aren't so good as they look. The result of abnormal traffic, even they would completely evaporate if subject to amortization charges.

And the Sud Pacifico de Mexico is no exception to the rule that all rail concessions in Latin America revert to the government in 99 years, whether or not the original investment has been recovered. The Sonora Railway concession expires September 14, 1979, when that part of the line will become the property of the Mexican Government. This will leave the rest of the roadway isolated from the United States, unless it should prove financially justifiable to connect Tonichi with the Nacozari Railroad. At present, traffic would hardly merit the expense.

From the management standpoint, Mexican labor agreements are the

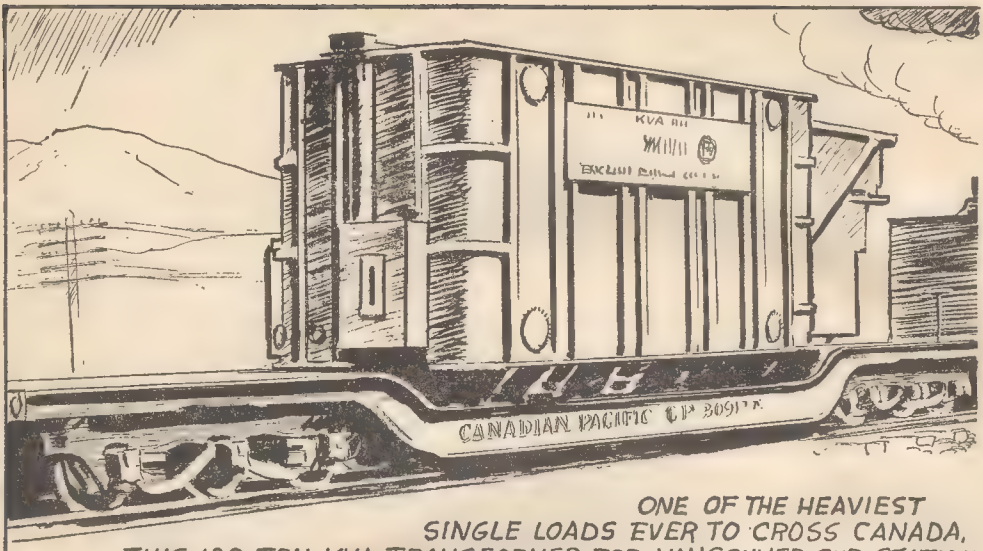
LITTLE TIME for bargaining about blankets. ***El Costeno*** makes but five stops—averaging 35 minutes each—between Nogales and Guadalajara. Since the road offers no dining-car service, stopovers to many mean one thing: food

greatest operational problem. Under laws passed by the Camacho regime, the rail worker's syndicate to which all operating employes belong has a more liberal contract than any in the United States. And Mexican roads can't avoid paying what the book calls for, as is occasionally done here with tongue-in-cheek reliance on litigation delays. The SP de M contract specifies three brakemen for forty-five cars or less, four for forty-five to sixty, and five for sixty to seventy-five cars.

If a train is short on brakemen, every fireman and brakeman is paid one-half *centavo* per man missing, while the conductor and engineer get one *centavo* per man missing *per kilometer.* Doubleheading done in the valley territory means double pay for both the engine and train crews; this also holds good for any train exceeding seventy-five cars. The overtime basis is eight hours or 160 kilometers, with double pay for all freight overtime, and total service is rigidly limited to eighteen hours. Enginemen's pay rates do not vary with the engine weight, only with the class of service.

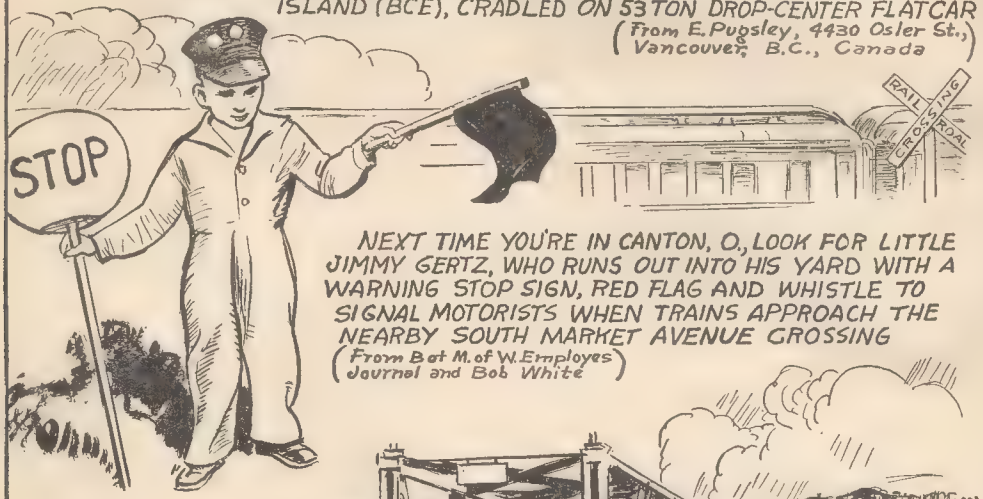
Despite the bleak financial outlook of the SP de M, an indication of expanding business and possible future prosperity is inherent in a recent statement from Southern Pacific sources that "the line is too heavily-loaded with freight to be advertising its scenic attractions." Today, the long main line of the Sud Pacifico de Mexico still remains much as it was on completion in 1927. But improvements may not be far off.

For increased farming developments, the new rail connections being built, and the extensive reclamation project near Hermosillo all point to denser traffic in the near future. Sonora may yet become a garden spot of Mexico. Whether or not the line ever pays for itself, there is little doubt that its mountain roadway merits at least one accolade. The lofty viaducts and lengthy tunneling in the Barranca section will remain a monument to the ingenuity and courage of its builders. Who knows but exploitation of Mexican industry may pay off in SP de M revenue.



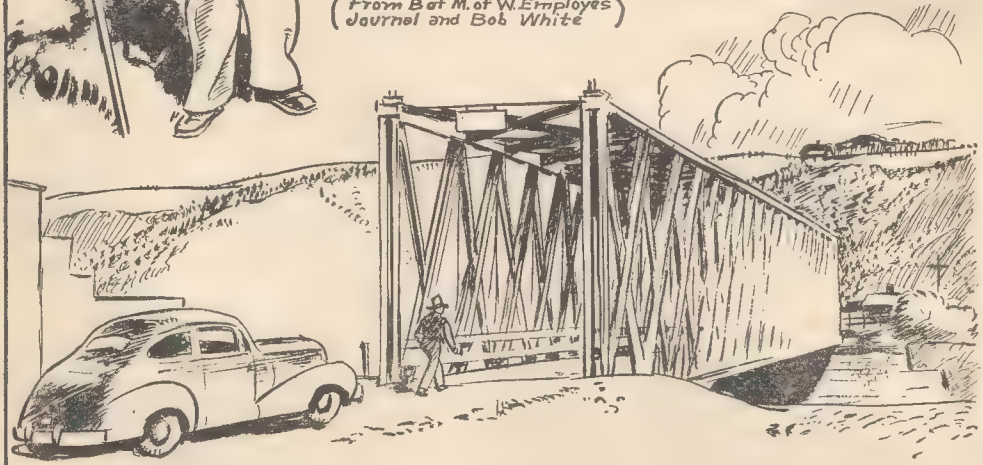
ONE OF THE HEAVIEST SINGLE LOADS EVER TO CROSS CANADA, THIS 122 TON KVA TRANSFORMER FOR VANCOUVER SUB-STATION RECENTLY WENT WEST BY CNR, CPR AND VANCOUVER & LULU ISLAND (BCE), CRADLED ON 53 TON DROP-CENTER FLATCAR

(From E. Pugsley, 4430 Osler St., Vancouver, B.C., Canada)



NEXT TIME YOU'RE IN CANTON, O., LOOK FOR LITTLE JIMMY GERTZ, WHO RUNS OUT INTO HIS YARD WITH A WARNING STOP SIGN, RED FLAG AND WHISTLE TO SIGNAL MOTORISTS WHEN TRAINS APPROACH THE NEARBY SOUTH MARKET AVENUE CROSSING

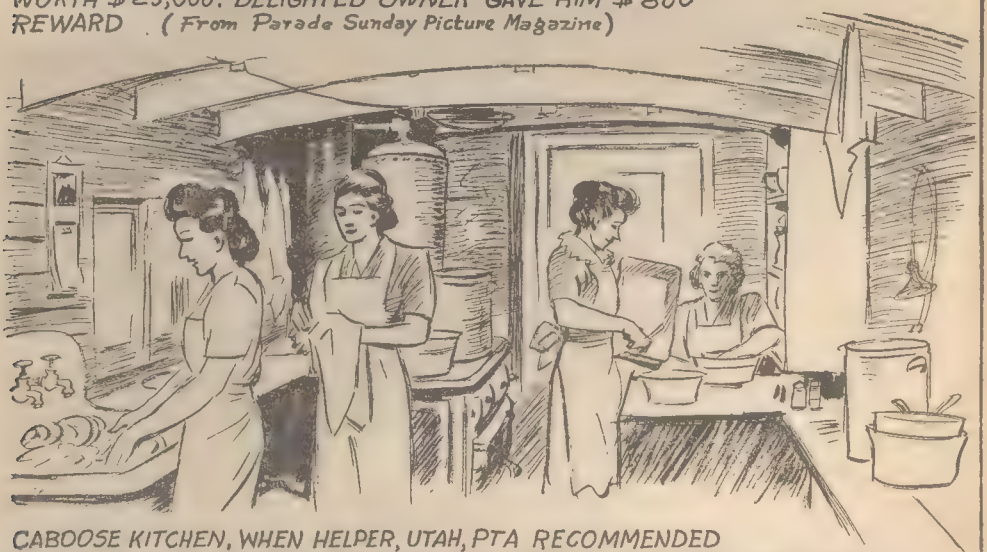
(From B & M. of W. Employes Journal and Bob White)



RAILROAD BRIDGE OVER WHICH NO TRAIN WAS EVER MEANT TO PASS. BURLINGTON BUILT AND DONATED IT TO TOWN OF CODY, WYO., BECAUSE THE LINE IS ACROSS SHOSHONE RIVER AND NEEDS A CONNECTION FOR ITS YELLOWSTONE PARK TOUR

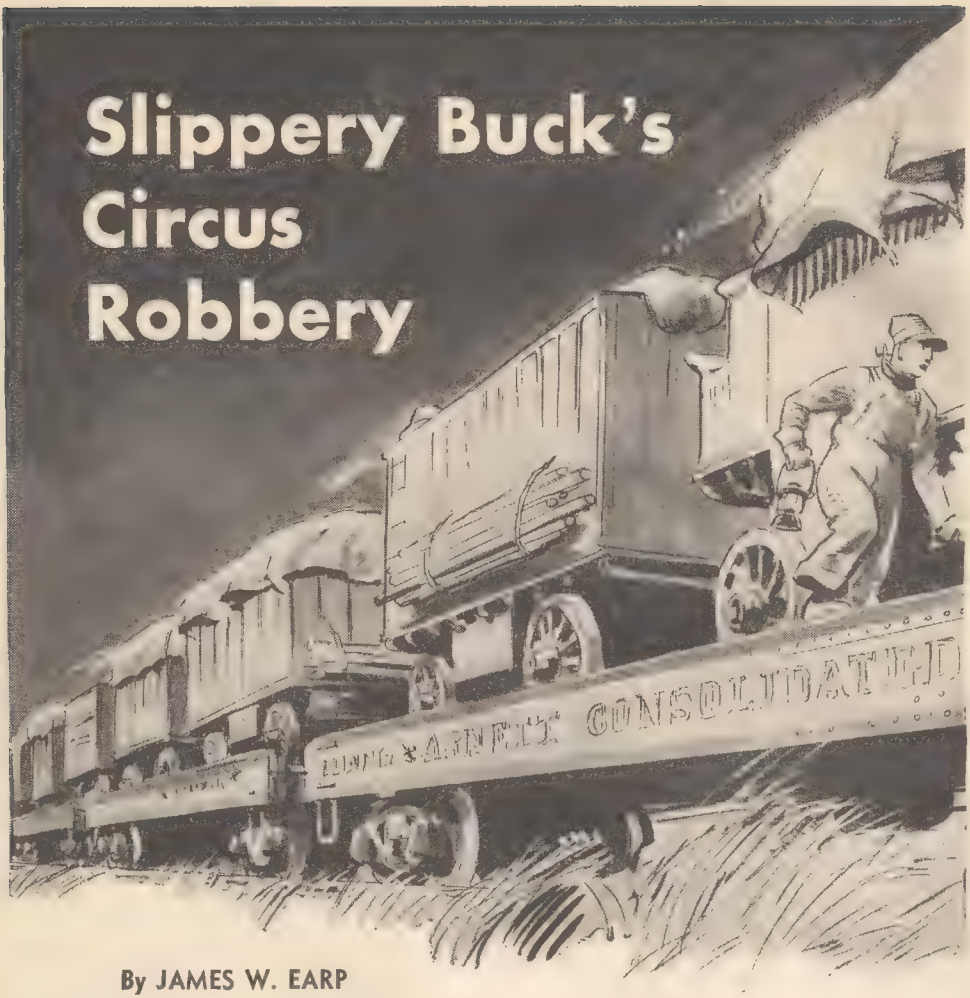
(From C. T. Steeb, 9 North 30th St., Billings, Montana)

IN PAST THIRTY YEARS PRR TRAINMAN JOHN BISHOP HAS TURNED IN BETWEEN 150 AND 200 MISLAID OR FORGOTTEN ITEMS. LATEST WAS A WOMAN'S HANDBAG CONTAINING TRAVELER'S CHECKS CASH AND JEWELRY WORTH $25,000. DELIGHTED OWNER GAVE HIM $800 REWARD. (From Parade Sunday Picture Magazine)



CABOOSE KITCHEN, WHEN HELPER, UTAH, PTA RECOMMENDED HOT LUNCHES FOR SCHOOL CHILDREN, BUT FOUND NO SPACE AVAILABLE FOR PREPARING MEALS, RIO GRANDE CLAM SHOVEL OPERATOR D. J. NELSON SUGGESTED BUYING OLD CABOOSE AND REMODELING IT. TODAY THE CULINARY HACK IS SERVING 112 STUDENTS DAILY (From Green Light, Rio Grande house organ)

Slippery Buck's Circus Robbery



By JAMES W. EARP

THE NIGHT that my conductor, Slippery Buck Anderson, blows into the caboose at Armourdale, his eyes shining and a stogie pointed towards the cupola where me and Battling Buskin are killing off outlaws, I don't need a fortune teller to notify me that a brakeman named Boomer Jones has a date with Dame Trouble. Shining eyes and a stogie always mean that Buck has found a new way of raising hell and my blood pressure. For that reason I decide to make a firm stand.

"The answer is *no,*" I state grimly before Buck can open his mouth. "I admit that you are the smoothest conductor that ever bossed a train or put over a fast one, but this is one time I'm strictly neutral. The doctor says I must avoid all undue excitement and nervous strains. What I should avoid is a conductor named Slippery Buck Anderson. Anyway, the answer is still *no.*"

"You're too previous," Buck grins, waving his stogie. "What if I was to offer you a three-day vacation on full pay, all expenses paid, not to mention a three ring circus and side-

GYP uncorks about six foot of monkhood and goes into action—against Borden

show with some of the greatest attractions in the world today?"

"The answer would still be negative," I grunt. "I'm allergic to circus trains. All they ever brought me was bad luck. For twenty years I've been dodging circus trains, and if I don't get slipped up on, I'll be dodging them for twenty years more. Just what particular brand of hell are you planning to raise now?"

"I had nothing to do with it," Buck protests. "Some kind of an epidemic down south made them change their route at next to the last minute."

"Made who change what?" I ask.

"The Elbing and Arnett Consolidated Shows," Buck replies. "Five trains are being delivered to us. We're called for the second section."

"I knew it!" I howl. "I could smell bad luck when you came into the caboose. Well, I won't. I'm a sick man. The wife is due to have twins. Oh, why is it that you are always cooking up trouble?"

"I had nothing to do with it," Buck denies. "And you'll have to go. Don't look so downhearted. Am I to blame for them changing their route?"

"They'd have had better luck bucking the epidemic than my circus nemesis," I groan. "No circus has ever been the same after I helped handle one of their show trains. Neither have I, for that matter. Circus trains have cost me three of the best jobs I ever held."

"Well, this one will be different," Buck comforts me. "I'll take care of your nemesis and cure your allergy at the same time. It's a great show, Jonesy. There's Madame Dubate, Queen of the Albinos; Gyp, the giant gorilla whom scientists claim is the real missing link, and who can box like Joe Louis, wear clothes like an artist's model and do mathematics like a college professor, and a host of others."

"Never mind the spiel," I sigh as I help myself to a chew of navy plug. "The only consolation I got is that I have plenty of life insurance. The coming twins may arrive as orphans, but they won't be on charity. If Elbing and Arnett survive me and my nemesis, I'm sure going to be surprised. And don't say I didn't warn you."

All of which explains my lack of enthusiasm this third and last night of our handling the second section of the circus. That disaster hasn't struck yet doesn't keep me from being worried as I watch the circus boys load the wagons and animals. The longer my nemesis waits, the bigger the catastrophe. I'm sure deep in gloom when Buck shows up with the orders.

Borden is with him. Borden is the road's chief sleuth and has the idea he's another Sherlock Holmes. They both smell of pink lemonade, peanuts and lily of the valley perfume.

"Well, this ends our vacation," Buck sighs. "A great show, Jonesy. That Gyp is certainly wonderful. In many ways he is smarter than a lot of humans. I haven't had so much fun since I was a kid."

"Save the alibis," I sniff. "Gyp don't use two dollars an ounce perfume. Also, he wears clothes instead of a couple of thin veils and a pearl necklace."

"The aroma comes from Borden," Buck chuckles. "He is riding with us again tonight by special request of Madame Dubate. She thinks it will assure greater safety for all concerned."

"For my money, I'd feel safer if he was locked up in a cage," I growl. "Madame sure has queer taste. Now, anything can happen."

"Nothing has happened," Buck rebukes. "And nothing is going to happen."

"The night is not over yet," I remind him. "If Madame only knew it she is flirting with death. My nemesis is bad enough alone. With Borden to help along, it's double death."

TO MY surprise Borden don't say a word. He don't like me, and I like him even less with his red face, redder necktie and old derby hat. Usually we always have a session of throwing insults at each other when we meet. That's why I can't understand it when he stays silent, looking far away into the darkness.

"And why would she want an imitation detective like him around?" I go on peevishly. "He couldn't detect a skunk in a whirlwind or trail an elephant in six feet of snow. All he has is a badge and a lot of brag."

"Lay off, Jonesy," Buck whispered as Borden still don't reply. "The first section is leaving town. We want to follow on their block."

We do. I move over on the opposite side of the train for a running inspection as the train pulls by me. Buck and Borden stay where they are as Lazy Lon, our engineer, whistles off. We have twenty-five cars. Six animal cars next to the engine, then twelve flat cars loaded with wagons and so forth, with six sleepers and the caboose bringing up the rear.

As far as I can see everything is perfect. Since Lazy Lon is fast picking up speed and the sleepers are coming close, I tuck the lantern under my arm and get ready to grab the caboose. That's when my cap just flies right off my head and disappears in the darkness. For a moment I'd swear somebody has yanked it off. However, I don't have time to do more than think when the caboose shows up. I board it about the same time that Buck and Borden do.

"What did you do with your cap, Jonesy?" Buck laughs. "Don't tell me you've finally decided to pension the old and faithful servant."

"The wind blew it off," I grunt.

"What wind?" Borden asks as he comes out of his trance for the first time. "There ain't no wind tonight. Even with the train moving we don't get much more than a light ripple of breeze."

"All right, Sherlock!" I snort. "There's no wind. So what?"

"Nothing," Borden answered. "I was just wondering why you would want to blame the wind for losing your cap accidental like."

I give up at this. Something sure is radically wrong with the imitation Sherlock. I push by him into the caboose to get my spare cap out of the locker. Hardly have I got inside when the front door flies open with a bang and a wild-eyed guy in pink pajamas comes sailing through. In one hand is my lost cap. At sight of me he pulls up short to point a mean finger at me and wave the cap at Borden.

"There he is!" whoops the pink pajamas boy. "Thank goodness he has not escaped. Arrest him, officer. Those pearls he stole are worth ten thousand dollars!"

Borden just stands there and blinks stupid like at the intruder. So do I for that matter. I don't need anbody to tell me that at last my nemesis has got on the job and that I'm due for trouble. Only Buck seems able to talk.

"What's that?" Buck barks. "What did you say?"

"He stole Madame's pearls!" The fellow shrieks. "This is his cap. He lost it in making his escape through the window of Madame's compartment."

"That's a lie!" I finally manage to bellow. "I haven't been in anybody's room. Somebody yanked my cap off as the train was pulling by me."

"Nobody could do that!" yelled the showman. "Nobody's permitted to ride outside on the cars once the train starts. Everybody rides inside. This is your cap. Madame and I recognized it. Do you dare deny it?"

Of course, I couldn't. In spite of myself I can feel the old knees buckle. Worse yet, there's a tiny red spot on the peak of the cap. Evidently Borden sees it, too, for he reaches for the cap.

"Madame Dubate?" Borden asks hoarsely. "This is her blood? Is she hurt?"

"Madame is hysterical!" he raves. "She has taken a vow not to perform again until her pearls are returned. I, her manager, will he held responsible. And that blood stain belongs to

the thief and not at all to Madame."

"It's not blood," Borden announces happily. "Looks to me like some kind of paste. For a moment, you had me worried. I was afraid maybe Madame had been hurt. And you needn't be looking at the brakeman, he hasn't got the pearls. He hasn't been out of my sight for the last hour."

"But his cap!" wails Pink Pajamas. "This is his cap. How did it happen to be in Madame's compartment after the pearls were stolen?"

"I don't know," Borden admits. "We'll have to find that out. Somebody out on the cars snatched his cap, hoping to throw suspicion on him. Jones never had time to steal anything, even if he had wanted to."

I'M SO surprised at this from Borden that I just gasp. It doesn't sound natural for Borden to throw away a chance to make trouble for me. I'm even more surprised when Borden hands me my cap which I stick in my pocket. Pink Pajamas by this time is raging.

"You're trying to shield him!" he howls. "Nobody could have been out on the cars. It is forbidden. Every car has a supervisor who must know that every person in his car is present. I demand that you search him."

"I don't have to," Borden declares. "He hasn't got them. Who has, I don't know, but I aim to find out."

"Stop the train!" P. P. screams. "This is outrageous."

"And let the thief get away?" Borden demands with the first show of anger I've seen him display. "Not on your life, Mr. Manager! The thief is still on the train. If he had planned to leave the train, he would not have gone to so much trouble to frame the brakeman. Get moving. Take us to Madame's room. Something tells me there's something mighty funny going on around here."

That's when I give up and sink down on the long seat in the caboose. My stomach feels like it has a million butterflies inside it. I don't need a doctor to tell me I've swallowed my chew of navy plug. Borden is pushing the manager through the caboose door ahead of him when Buck beckons me to join them.

"Might as well see this thing through, Jonesy," Buck says. "Put a couple of fusees in your pocket in case you do have to do a flagging job. Madame is in the head sleeper. Come along, and wipe that scared look off your face."

"I can't!" I moan. "I told you that all a circus ever brought me was trouble. This is just the beginning. What the end will be I hate to try to guess. And why didn't Borden try to hang me? That's not natural for Borden. And my cap in Madame's room. The whole thing don't make sense, Buck. Why would they try to frame me?"

"That's what I intend to find out," Buck frowns. "It was a dirty trick to do. As for Borden acting natural, no man in love ever acted natural."

"Borden in love!" I exclaim. "He couldn't be. Who could love him?"

"Madame Dubate," Buck grins. "A wonderful woman, Jonesy. Of course, Borden is a dumbbell in lots of ways, but if Madame wants him to complete her happiness, who are we to tell her differently? I've been trying to help matters along, but Borden is so deeply in love that he is afraid to tell Madame he loves her. He thinks he is not good enough for her. I thought for awhile that Madame herself would have to do the proposing if she was to land him."

"Well, why don't she?" I ask. "She wouldn't be the first woman to do it."

Buck turns away, but not before I catch that gleam in his eyes which always comes before he is ready to pull a fast one. The only reason it doesn't register with me is that Buck hasn't a stogie in his mouth.

"Maybe she'll have to in the end," Buck informs me. "Now, come along. We're wasting time."

We catch up with Borden and Pink Pajamas just as they enter Madame's compartment. It's a cute room, all right. By the little window there is a bed. Over by the wall, next to a private little room, is a small dressing table and chair. I feel kind of bashful at seeing Madame in her silky nightgown which sure doesn't leave much to your imagination. I think Borden feels the same way because his red face turns even redder as Madame slinks over to him and puts a white hand on his big brown one.

"Thank goodness, you have come, my brave protector!" she half sobs. "Now, I know my pearls will be returned. My late husband gave them to me. They are all I have to remember him by. I am so glad the brakeman did not steal them. But if he did not, who else could have taken them?"

"That's what I aim to find out," Borden tells her. "Now, if you'll tell me where you were and what you were doing when it happened, maybe I can figure something out. A crook always leaves a clue, no matter how careful he is. Later, I'll look around."

MADAME tells her story while Buck noses around. She was fixing up for the night in the private room. Her pearls were on the dresser. When she returned the pearls were gone and my cap was in their place.

"He came in by the window," Madame goes on tearfully. "You can see the screen is gone. Always the window is open, but the screen is kept locked. The nights are so hot I must have air. How he could do it, I do not know. See how far from the ground the window is? And the roof is even higher. Not even our best acrobat could perform that feat."

"But two could," Buck observes, sticking his head out the window for a look. "What do you think, Borden."

"It was a one-man job," Borden declares after a brief glimpse. "I could do it myself with a rope tied to the roof. Caught a thief one time who was robbing boxcars the same way, and on a moving train, too."

"Of course!" Madame gushes. "That must be the answer. You are so wonderful."

Borden blushes redder than ever. "I'm just a detective, lady. It's my trade. Now, that we know how it was done, all we got to do is to search the train. I'm going to begin with the sleepers."

"I forbid it!" yells the pink-pajamaed manager.

"Be quiet, Emil!" Madame commands. "This man is a detective."

"He's a big gas bag!" Emil explodes. "All he does is talk."

"I like to hear him talk," Madame says. "He makes me think of my dear husband."

Emil groans again. Just then Buck who has been looking out the window jumps back so sudden that he bangs his head against the window sill. Before I can say a word, he slumps on the floor and buries his face in his hands.

"Buck!" I scream, rushing towards him. "What's wrong? Are you hurt?"

"The thief!" he says in a choky sort of voice. "I just saw him—out on that first flat car. Never mind me. Go get him!"

"Yes, my brave detective, go get him!" shrieks Madame. "Bring me back my pearls and you may name your own reward. I could marry the man who would bring me back my pearls."

Borden makes a dash for the door like he is going to war. Right in the middle of the doorway he stops dead still.

"I got to have somebody to help me," he says. "Can't search two sides of the train at once. Too many places to hide."

"Go with him, Emil!" Madame orders. "Go and see how a brave man performs."

"Not for a million dollars! I'm your manager, not a fool. It's not permitted for any of us to be out of our quarters."

"Go with him, Jonesy," Buck says in that muffled voice. "Stay on the righthand side of the train. If you need help, light a fusee and I'll stop the train."

So I follow Borden out over those swaying cars. Believe me, it wasn't my idea of a safety-first job, what with those cars swaying and us having to hold onto circus wagons and such as we edged our way along. My lantern and Borden's flashlight never miss a possible hiding place. Even the tops of the wagons are covered. We cover four cars, then pause for breath, during which I help myself to a fresh chew of navy plug.

"We've sure got him cornered." Borden says. "He can't get away. I wish I had my gun with me."

I sit down kind of weak-like. "You mean to tell me you got no gun?" I ask.

"Not tonight," Borden apologizes. "It's in my grip. I never thought about it until just now. But we don't need a gun to catch a sneak thief who would steal pearls from a fine lady like Madame. On your toes, Big Boy. We got to keep moving."

I'm just ending up the fifth of the flat cars when I hear Borden let out a wild warwhoop. No need to tell me we've caught up with the thief. I scrambled around the end of the last circus wagon just in time to hear Borden bellow:

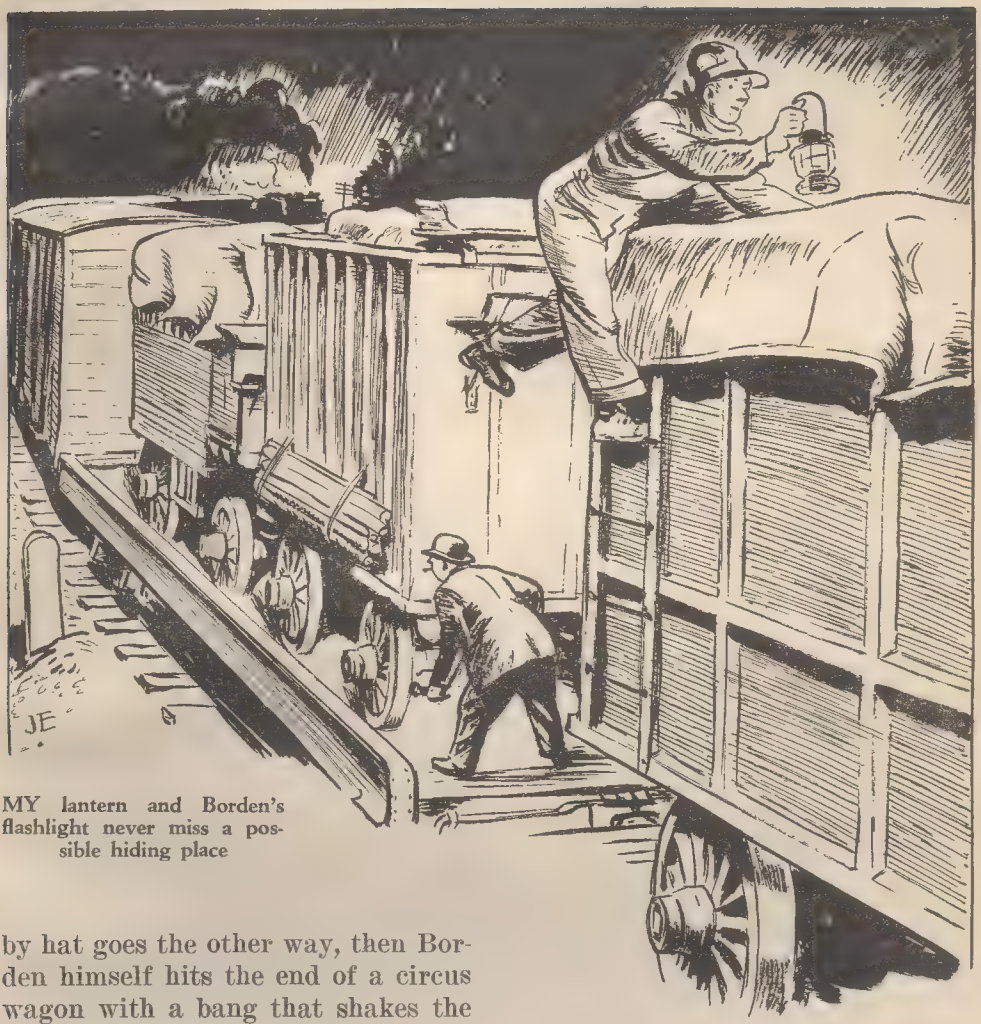
"Up with your hands, Big Boy! Come up peaceful or I'll drill you."

Borden's flashlight is playing on a guy what is dressed in a plaid suit with cap to match. His back is towards us, and his feet are dangling between the cars like a boy at play. Somehow, sometime, some place, I know I've seen that plaid suit before. To save my life I can't remember just how or when or where.

"On your feet, you crook!" Borden shouts once more. "On your feet!"

But the guy in the plaid suit don't get on his feet. In fact, he don't even bother to turn around. That's when Borden hauls off and kicks Mr. Plaid Suit right in the seat of the pants. And at the same time I happen to remember where and when and on whom I'd seen that same plaid suit. I open my mouth to yell, but all I do is swallow my chew of navy plug.

Yeah, you've guessed it. The plaid-suited gent is nobody else but Gyp, the giant gorilla. How he got out of his cage, and what he is doing out on them flat cars just has time to flash through my mind when Gyp uncorks about six feet of monkhood and goes into action. Evidently he sure don't like being kicked in the pants. Borden's flashlight goes one way, his der-



MY lantern and Borden's flashlight never miss a possible hiding place

by hat goes the other way, then Borden himself hits the end of a circus wagon with a bang that shakes the whole car.

"Y-e-o-w!" Borden yells. "It's the baboon. Hellup!"

To my surprise Borden doesn't try to run away. Instead, he bounces right back to mix it with Gyp. Maybe that's why I don't try to run away. Although I got nothing but my lantern, I swing it at Gyp's plaid cap with all the strength I can muster. I am praying I get results because by this time Gyp is hitting Borden with everything except the tent poles and the circus wagons, and Borden is bouncing back and forth like a ping pong gone crazy.

WHAT HAPPENED after that is kind of hazy. The lantern lands all right. A split second later a couple of comets and a bunch of shooting stars explode in my face. The next thing I know I'm under the circus wagon with only the bail of the lantern in my hand and a jaw that feels like it had been kicked by a mule. Up above everything is quiet. No need to tell me that Gyp has done away with Borden. Will I be next?

I know the answer when a clamp fastens onto my leg and starts to drag me out from under the wagon.

Since I don't have no desire to mix it with Gyp, I politely haul off and kick him in the stomach. Gyp is doing some plain and fancy cussing in monkese as I shoot back under the wagon and out the other side.

But not for long. Gyp gets his breath back and comes around the end of the wagon just as I light a fusee to pass a signal back to Buck. I don't have time to pass any signals when Gyp reaches out a big hairy paw towards me. Being desperate and scared stiff, I let out a yell and jab that spitting fusee right into his plaid vest. Right then, Gyp echoes my yell. There's a smell of burning cloth and Gyp leaves me alone long enough to throw a dozen wicked washouts with that red fusee while he does some fire fighting on his plaid suit.

The rest is all one long nightmare. Every time Gyp makes a pass at me, I jab him with that lighted fusee. I've probably burned a dozen holes in his plaid suit when there's a sound like somebody has hit an empty barrel with a ball bat and Gyp folds up like a wet rag. I fold up with him.

"Kick me in the face will you?" I hear Borden's voice saying, and it sounds a long way off. "Get up, you pie-faced baboon, and let me kiss you again with my blackjack. Come on. Get up. I dare you to get up!"

I lift my eyes. Borden is standing over the monk, a blackjack in his hand and murder in his one good eye. By the light of the fusee I can see the other eye is swollen shut, and he has a busted lip and a half dozen bruises on his face. At his feet is Gyp, his big mouth with its crooked teeth wide open, his eyes closed.

"Look, Paw! Coney Island!"

"I think you've killed him," I wheeze. "And they say he is worth fifty thousand dollars to the show."

"He won't be worth fifty cents, if he so much as wiggles a hair!" Borden swears. "This is a hell of a show when they let crazy baboons run loose trying to kill people. Only for my good old blackjack we'd both be deader than a doorknob right now."

"Well, he's sure a dead monk," I say, speaking tired-like.

"Not a breath in him. Guess we might as well go back to the caboose. No use trying to hunt

the thief without lights or lantern. I've got one fusee left. Maybe it will last long enough for us to make it. Can't understand why Buck never saw my signals and stopped the train."

"He's probably still with Madame Dubate," Borden growls under his breath. "If I was a married man I'd be ashamed to carry on like he does with other women. Of course, he's just wasting his time with her. Madame is a lady all the way through. And I'm going to see that she gets her pearls back. We'll go to the caboose and get lanterns, then run down that thief."

"Not me," I tell him. "When we get back to the caboose, I'm going to bed. My nervous system is shot."

Back to the caboose we go. Because Borden doesn't want Madame to know, we go over the tops of the sleepers. Buck is at his desk when we arrive at the caboose. One look at Borden's face and mine, and Buck whistles long and loud.

"I don't know how you can do it, but it is plain to be seen you have done it," Buck says in a resigned tone. "My better judgement should have warned me that to send you two out together would end in disaster. But for once I thought everything was foolproof. Now, would you tell me just what happened?"

I do. Buck's face is sure a study in emotions as I relate our adventures. When I tell him about leaving the baboon lying on the flat car while we came back for lanterns, Buck jumps to his feet and reaches for the emergency air brake valve.

"Of all the boneheaded stunts that takes the cake!" Buck raves as he opens the air valve. "If you have killed that monk, this railroad and ourselves will never hear the last of it. Gyp never harmed a soul in his life. He is as tame as any house dog —tamer than some."

"Tame!" Borden roars as he points to his battered face and black eye. "Maybe you think I got these things by playing tiddley winks. If that beast is tame than I'm a roaring lion."

Buck just snorts his disgust. By this time the train has stopped. Buck hits the ground on the run with Borden on his heels. I go back to stop the third section. They stop for my red fusee and pick me up. When they stop back some hundred feet from our caboose, I unload and walk in. Buck is waiting for me.

"Highball, Jonesy," Buck says. "Everything is okay."

I HIGHBALL and follow Buck into the caboose. Once inside, he sits down to the desk and lights up a stogie. In his eyes there is that satisfied look which always is there after he has pulled a fast one.

"Listen, Buck," I says pleading-like. "I can't stand any more excitement or suspense tonight. Did we kill the monk?"

"Of course not. Gyp is too tough to be killed with a blackjack. But I was worried when we got to the car and found him gone. I was afraid he had fallen off. Then I noticed that our head brakeman had not showed up, so I went to the engine."

"And found Gyp!" I add. "Thank goodness."

"I don't think the engine boys would echo your sentiments, Jonesy," Buck chuckles. "Gyp had taken charge of things over there. Buttons, our head man, and the fireman were wedged in between the boiler head and the cab, both scared out of their wits, while poor old Lazy Lon

had passed out completely. Gyp has the fireman's shovel and is throwing coal everywhere except in the firebox."

"I don't blame them," I put in. "I was scared tonight myself of him."

"Gyp wouldn't hurt a flea," Buck says scornfully. "He's harmless. Nothing but a big clown. I took the shovel away from him, sent Borden for his keeper, then poured water on Lazy Lon till he revived. After Gyp had been taken away, I gave Borden the pearls to return to Madame—and here I am."

"You gave Borden the pearls!" I repeat stupidly. "Where did you get them?"

"From Gyp," Buck grins. "He had them all the time."

"So he was the thief!" I exclaim. "That explains the entrance by the window. And he snatched my cap off—"

"Madame snatched your cap off," Buck interrupts. "That was not on our program. When Emil showed up with that cap, I was scared to death that Madame had thrown a monkey wrench in the machinery. If you'll look at your cap, you'll find a smear of lip stick on the peak. And nobody entered Madame's room."

"Listen, Buck," I complain. "You don't make sense. I don't get it."

Buck tilts his stogie ceilingward and takes a big puff. "The trouble with you, Jonesy, is that you never reason things out. Frankly I thought the whole scheme was foolproof. So did Madame. It never occurred to me that you and Borden could muff the whole set up so completely."

"Muff what?" I demand peevishly. "Quit talking in riddles."

"I'm doing the best I can," Buck rebukes. "Madame gave Gyp the pearls. The pearls were imitations. Then Madame set the stage. Gyp's act was to hand over the pearls when he met up with Borden. The monk is smart.

"He nearly always does what he is told to do. The only explanation I can think of is this to explain why Gyp didn't perform as required—Borden threw him off the track by kicking him in the seat of the pants. Even a dumb detective like Borden should have suspected that Gyp had the pearls when he was found loose on the train. All the clues were laid to point that way, even my act."

"It was a bum act," I grunt. "I should have tumbled you were faking."

"Oh, I saw Gyp," Buck laughs. "I knew the keeper had kept his word. What he failed to do was stay close to the monk. Guess the poker game was too fascinating. Do I make myself clear? If not, I'll try again."

"Borden," I say slowly, "does he know about this?"

"Heaven forbid!" Buck ejaculates. "Borden is supposed to be the hero. It was a struggle, but we finally managed it."

"Where is Borden?"

"In Madame's room. Madame, the last time I looked in, was putting ointment on his bruises and kisses on his split lip. From the looks of things, Madame has won her man. Which reminds me, Madame has sent you a little present, a good luck charm which will keep your circus nemesis at bay forever, not to forget four tickets to the next performance of the circus in our home town."

"And what could I do with four tickets?" I snort. "There's only me and the wife."

"You forget the coming twins," Buck smiles. "They wouldn't want to miss a good show."

—and the Legendary Times When a Diamond Stack Looked Like One of Job's Treasures

IN THE winters following that of 1890 the words "snow-bound in the Sierras" recalled to many travelers the terrifying sight of dry snow blown by mountain gales like a mist along the ground until many miles of the Central Pacific Railroad disappeared beneath a solidly packed field of ice. On January 15th, a CP train a little out of Reno, Nevada, and bound for San Francisco, stuck fast in the drifts. The blocade was seventeen days old when this same train, the first to negotiate the 100 miles of snow-piled track, pulled into San Francisco. The passengers aboard had suffered from the cold and the rarefied atmosphere and several of their number had died enroute.

The easterly limit of the blocade was at Reno; there, westbound trains stopped and waited for the road to be cleared. On January 30th, the through train which had been pulled back to Reno moved westward to the rejoicing blast of fire crackers and Chinese bombs. Ahead of it moved the new rotary, which had left Reno days earlier, pushed by six engines. The rotary had cut through the drifts, but there remained a dangerous layer of ice. For long distances the track had to be flanged with picks and shovels before the train could pass. Three hundred feet from completing its job, the rotary broke down, its snow knives fractured. Chinese laborers broke through the remaining wall of snow.

Frank Leslie's Illustrated Newspaper print from Culver Service

REMINDER of an earlier snow storm is this scene near Ogden, Utah, on the Union Pacific in the winter of 1872. The UP route from Ogden to Cheyenne, Wyoming, was impassable for three weeks. More than 800 freight cars and a number of disabled engines were collected at Cheyenne. Trains already enroute when the storm struck were less fortunate. Passengers remained in the cars almost the entire time, receiving supplies from the railroad's hastily formed "Snow Brigade." Foreground of this sketch by J. B. Schultz shows Chinese labor squads digging a passage for the mail train. In the rear, past where telegraph line still stands, a double-headed freight exhausts on air chilled to 25 and 30 degrees below zero

Harper's Weekly print from Culver Service

ONLY telegraph poles show the position of Central Pacific trackage in Charles Graham's sketch of a rotary at work in 1890. Snow plows and shovelers labored day and night from both ends of the blockaded track, the single telegraph line still in operation reporting their progress. A cyclone plow moving eastward soon broke down; the rotary continued to shove ahead at the rate of twelve miles an hour assisted by a force of 2500 Chinese who attacked with picks and shovels the solid masses piled up by the plow. Time to clear the track for the first train to go through was ten days and nights. Cost: several lives, $75,000 a day, and "much discomfort to travelers unfortunate enough to be in a hurry"

Light of the Lantern

SHOCKPROOF SHIPPING

BEETS that took a beating on their five-day run between Mercedes, Tex., and East St. Louis, Ill.

PERIODICALLY, our railroads have undergone revolutionary operating changes, resulting from universal acceptance of some new and successful invention. The advent of the automatic coupler, apart from the safety factor involved, untangled congestion at yards and sidings. The airbrake brought with it a new conception of safe train speeds. Centralized Traffic Control has nearly doubled the utilization of existing trackage.

Today we are on the threshold of another great advance, less colorful perhaps than many which have preceded it, but more significant in the sense that it may well mean the difference between a red and a black balance sheet. We refer to shockproof shipping.

It is hard for the average railroader to appreciate the extent of damage done to boxcar shipments during a single year. Much of it happens out on the road, while trains are moving over rolling and mountainous terrain. But the greater part takes place in yards, where cars are being switched. Placards, official caution, and well-planned regulations have done little to reduce the loss.

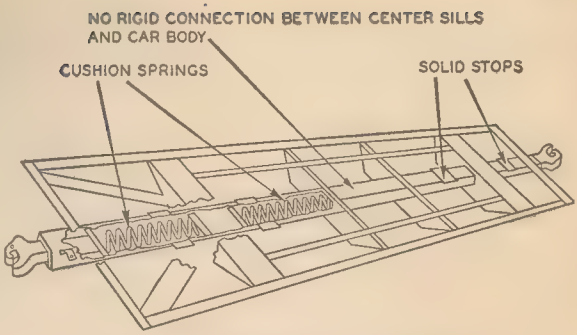
Claim figures are discouraging. At the present time there are slightly less than two million freight cars traveling over our nation's railroads. Against every one of these cars, each year, is chalked up approximately twenty dollars in freight loss or damage. Apart from shelling out the forty million dollars this type of wasteage is disastrous in an intensely competitive transportation era. Particularly in view of the fact that small manufactured items of the perishable type constitute a profitable source of revenue and the one most likely to be snatched away by the trucks and airlines.

Early studies of the problem of safe shipping brought disheartening results. The railroads placed much of the blame on the shippers and demanded extravagant crating. In return they changed their loading practices by cramming the cars leav-

ing little room for shifting of lading. The damage continued, many shipments being recorded in which the money returned for damages actually exceeded the original freight charges. Finally, in desperation, intensive study and tests were made to put the finger on the basic cause of the shipping bugaboo.

The result was conclusive. This was not a problem of operation, but one of car construction. Cushion the wallop at the drawbar sufficiently and the day would be saved. But to do this there must be a better understanding of the forces to be dampened and the effect of such impacts on a loaded car. For example, with conventional equipment there is usually about ten inches of slack at the couplers. On a hundred-car train this means approximately ninety feet of lost motion. It isn't hard to visualize the snap at the rear end no matter how slowly and carefully the locomotive gets under way.

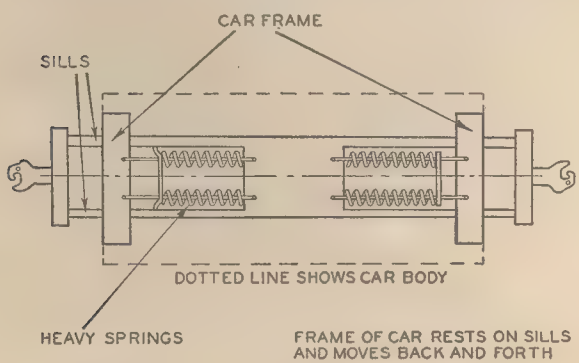
But as we said before, the greatest damage is done in classification yards. Many of the big terminals today employ the "hump" design, using gravity to furnish momentum onto the ladder tracks where outgoing traffic is assembled into trains. While effort is made to hold down the speed of cars descending the hump to a non-accelerating two-miles-per-hour rate, there are times when units traveling under load crash into stationary cars at twice or even three times that speed. The amount of energy released by such an impact is terrific.



DURYEA CUSHION UNDERFRAME

It was Otho Duryea, an inventor entirely lacking in railroad knowledge, who threw away the old and futile expedient of simply toughening the underframe construction to resist such force, and came up with a new concept of drawbar cushioning. When the problem was brought to him by the carbuilders in the middle 20s, he asked for plans of existing equipment and studied them carefully. He found as we already know, that the average freight car is built like a wagon, with its body firmly attached to the frame, and that its coupler shanks have only a small spring to absorb end blows. This spring has a compression of not over two and three-quarter inches and when it "goes solid" the remainder of any external shock is transmitted to the car, as well as its contents.

He had noted, too—as every rail traveler does—that when a passenger train stops suddenly, riders in the first car may be hurled forward violently while those in a distant rear coach are scarcely conscious of the surge. There is nothing baffling about this. Centuries before, Sir Isaac Newton had pointed up the natural law that when a body is once set in motion it will continue its travel until retarded by some other force. When this body is heavy, and stopped sud-

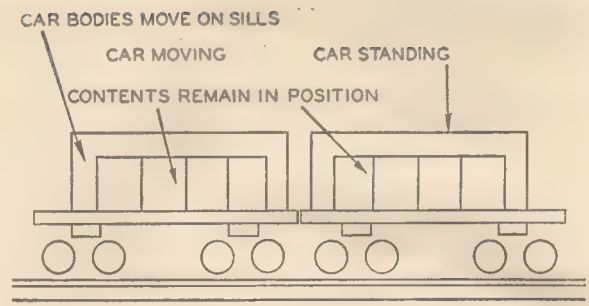


BASIC PRINCIPLE OF CUSHION UNDERFRAME

denly, the reaction is great. If, on the other hand, it can be retarded gradually, the reaction is materially reduced.

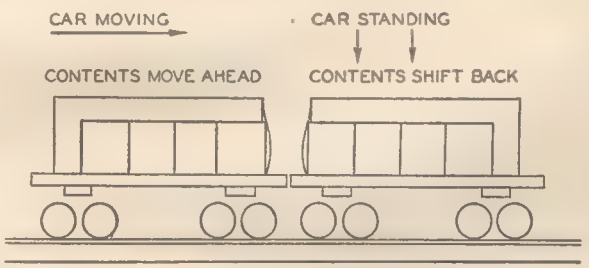
Duryea made that law work for—and not against him. In the cushion gear which he designed and for which he received the Henderson Gold Medal presented by the Franklin Institute in 1933, the body of the car is not attached to the center sill or frame, but actually "floats" upon them, as on a rail.

Our first schematic drawing on page 69 illustrates the basic principle of this design, indicating how the forward and backward movement is accomplished With this arrangement, any end blow simply moves the center sill, while the car and its contents remain stationary in relation to the track structure beneath it.



CAR BODY DOES NOT MOVE IN RELATION TO GROUND

ACTION DURING IMPACT AT CUSHIONED UNDERFRAME



CARS WITH FRICTION DRAFT GEARS
CONVENTIONAL TYPE

The second diagram shows the actual manner of applying the gear and the springs. The latter are installed during the construction of the car, after which plates are welded over them, sealing out the damaging effects of the elements. Records of fifty thousand cars so equipped prove that there is no deterioration which affects reliability or performance. Once assembled, the gear will last the lifetime of the car. This is not true of the conventional design, where it is estimated that approximately six draft gears are worn out during a thirty-year period.

To understand the excellent results achieved by the Duryea type, let's study some figures pertaining to a fifty-ton car. We know that as the velocity or weight increases there is a correspondingly greater blow in footpounds. Allow this car to travel at exactly one mile per hour and it develops 4785 footpounds of energy. At two miles an hour the force is quadrupled, and further acceleration continues at the same ratio. Thus at ten miles an hour the car will develop the enormous impact of 478,000 foot pounds!

Conventional car requirements demand a minimum spring absorbtion of 18,000 pounds at the draft gear. Note, however, that even at two miles an hour our fifty ton car, when stopped suddenly, will strike a blow which exceeds that absorption limit. The remainder of the impact must be taken by the car and its contents.

The heavy springs along the center of the sills of the cushioned gear, on the other hand, can absorb 64,000 pounds. In other words, the cushioning capacity is increased four times, through an increase of space and time. This does not mean that all shock is eliminated, as there is a limit to the amount of permissable body travel. Modern construction allows for a movement of seven inches; lugs being welded on the sills to prevent further travel.

Duryea's idea has undergone a number of improvements since its first appearance in 1927, and as time goes on there will undoubtedly be more. Already cabooses, where there is provision for longer travel, provide almost jarless action.

Courtesy Western Pacific

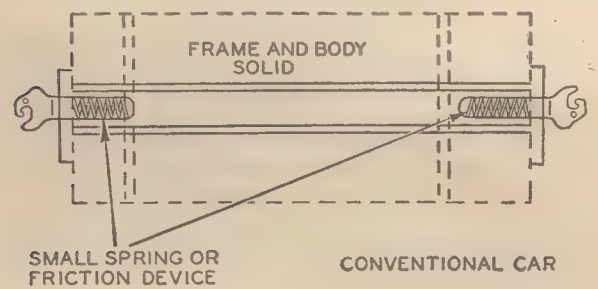
WITHOUT drawbar slack it would be impossible to start today's long freights but, once under way, the play between cars presents a shipping hazard

During an early test of the gear, made on the Baltimore & Ohio with a train of one hundred and seventy-five empties, traveling at a speed of fifteen miles an hour, a glass two-thirds filled with water was set on a table back in the buggy. A stop was made with this train of cushion-gear-equipped cars without spilling a drop. This was an impressive accomplishment, for under normal circumstances trainmen would have taken precautions to prevent minor injuries.

It is no wild dream, then, to envision shipments of the future speeding over the rails and through terminals at double their present rate, with damage virtually unheard of. The railroads, for their part will not only save damage claims but benefit by reduced maintenance costs. Cars will spend less time on repair tracks, allowing greater yearly mileage and increased revenues.

And there is another substantial dividend. That is a reduction in hotbox trouble. It has been proven that most failures resulting from this source have their origin in a hard bump at some terminal. What happens is that a hard end blow causes the car to be lifted momentarily off an axle. At the same time loose waste is flipped up between the journal and the brass. This destroys the tiny film of oil which protects the wearing surfaces.

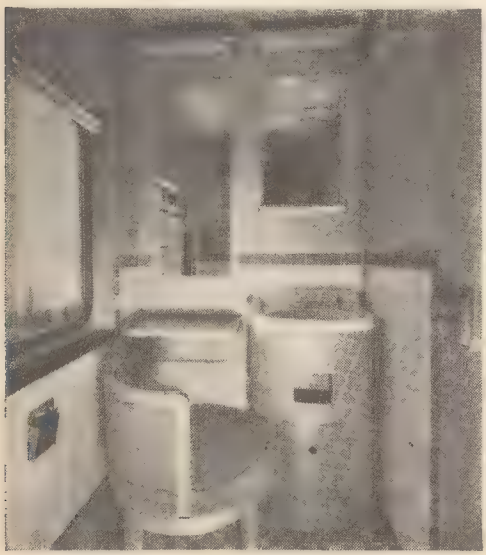
Yes, Duryea has made a major contribution to the railroad industry and it is reasonable to suppose that the day will come when his name will be enshrined in the industry's hall of fame along with those of Stephenson and Westinghouse.



OUT OF THE CAR SHOPS:

R F & P's *Old Dominion* Consist

A CF MEANS A-mazing C-omfort F-or Richmond, Fredericksburg & Potomac passengers when they ride the South's newest streamliner, *Old Dominion*. The five-car rail-liner, outshopped at the St. Charles, Mo., plant of American Car & Foundry recently, is an outstanding addition to the traditionally distinctive fleet of luxury trains which speed over the Capital Cities Route between Washington, D.C. and Richmond. Her livery of blue-and-gold-striped Confederate gray gives only a trackside hint of luxurious interior appointments.



All four coaches, as well as the parlor-cafe car, have ivory ceilings for maximum light refraction. The side walls in the former combine a skillful blending of aluminum and tan, offset by green-gold window shades. Seat upholstery is blue, as are the floors.

The parlor-cafe unit serves the three-fold function of providing dining, lounge and parlor room space. Its tan walls are accented with rose wainscoting. Chairs in the lounge have gray and cardinal, and blue-green upholstery, used alternately, while those in the dining and parlor rooms are red and gray, respectively.

Thus is launched another short, but perfectly appointed, coach train. If events of the past presage the future, public response will soon induce the railroad to couple up additional coaches. At which point, let's hope the *Old Dominion* loses nothing of her intimate charm.

ABOVE: Parlor-cafe car of the ***Old Dominion***, which went into service last October. Air-conditioned throughout, the five-car train seats 302 passengers. Roller-bearing trucks, tight-lock couplers and high-strength steel contribute to passenger comfort and safety

AT RIGHT: Dining section of parlor-cafe car seats twenty passengers. A well-equipped pantry permits the preparation of a wide variety of tasty meals

AT RIGHT: Salon photos of historic wayside landmarks relieve severity of bulkheads. Explanatory text is framed beneath each print

AT LEFT: Washrooms in parlor-cafe car permit passengers to freshen up without returning to coaches. Basins are porcelain, walls of plastic tile

Photo courtesy Reading Co.

PERCHERON among ponies. Reading Mallet 1816 dwarfs her Mikado and Pacific stablemates at the home terminal

INFORMATION BOOTH

I

DESCRIBE *the Maine Central's new deluxe passenger equipment introduced last June.*

During the first days of June thousands of persons in seven Maine cities had the thrill of seeing the first entire train of post-war new passenger equipment operated in New England. The exhibition train, hauled by a Boston & Maine Diesel, and consisting of four new coaches and a coach-baggage car, visited Portland first. Highlight of the exhibition there was the christening with Passamaquoddy Bay water of the car bearing that name by Miss Jeanne Brooks of West Pembroke, one of the sixty thousand Maine school children who submitted names in a contest to pick the names to be used on the new cars. Miss Brooks, who selected the name Passamaquoddy, was assisted by Clark Patterson of Vassalboro, who submitted another winning name, Abenaki, and two other school children of the 240,000 who took part in the car-naming contest sponsored by the Boston & Maine. Open to the public following the christening, the train moved on to Lewiston, Waterville, Bangor, Pittsfield, Augusta and Brunswick, during the next four days. Noteworthy features of the coach interiors are their roominess—they seat only fifty-six in comparison with the conventional eighty-four—and the luxury of the "Sleepy Hollow" seats with their nine reclining positions and comfortable foot rests. These are a far cry from the conventional hard, upright New England go-to-meeting seats

of the old coaches. Other features of the new equipment are the glassed-in smoking lounges with divans and easy chairs; the six-foot observation windows; large end-wall photo murals of typical New England scenes; and the ladies powder room with make-up table and make-up lights and mirrors.

New restaurant-lounge cars made their appearance with this equipment at a later date, having been held up by material shortages and strikes. The Maine Central's million dollar's worth of twelve new cars will be used in conjunction with a similar number of Boston & Maine post-war cars, to run on three trains in both directions between Boston, Portland and Bangor—the *Flying Yankee, Pine Tree* and *Kennebec.*

2

WHAT has become of the large fleet of flatcars built in Canada for the Soviet Russia? I understand the Russians canceled the order.

These 50-ton flats, built in 1945 for Russia under Canadian lend-lease and transferred to the War Assets Administration at the end of the war, are now being reconverted for use on the wide-gage (1.76 meters) railways in Argentina, now operated by the Argentine government but formerly owned by British interests. Deliveries are now being made, the cars being shipped from Vancouver and Nova Scotian ports. Argentina is paying Canada for this equipment in dollars. Her need of railway cars at the present time is critical, as evidenced by the fact that cement, which is plentiful in Argentina, must be imported for use in Buenos Aires because transportation within the country is inadequate.

PAINT OUT the Russian monkey-wrench. These Canadian-built cars are now on their way to Argentina (Item 2)

3

BRIEFLY outline the factors involved in making a railroad freight rate.

1. Weight of the shipment in relation to bulk is considered. Light materials require more freight car space per ton.

2. Expenses for special services, like switching, must be considered.

3. Consumer needs are figured in making rates on necessities from distant points.

4. Distance. Each extra mile of haul means more wear and tear and added fuel.

5. Value of shipment, due to responsibility for damages or loss in transit.

6. Proposed interstate rates are filed with the ICC, which can suspend and change them after hearing.

7. Rate making rules allow special adjustments to permit fair competition between shippers.

8. Proposed rates are submitted on the "Public Docket," open to all. Anyone may offer objections.

4

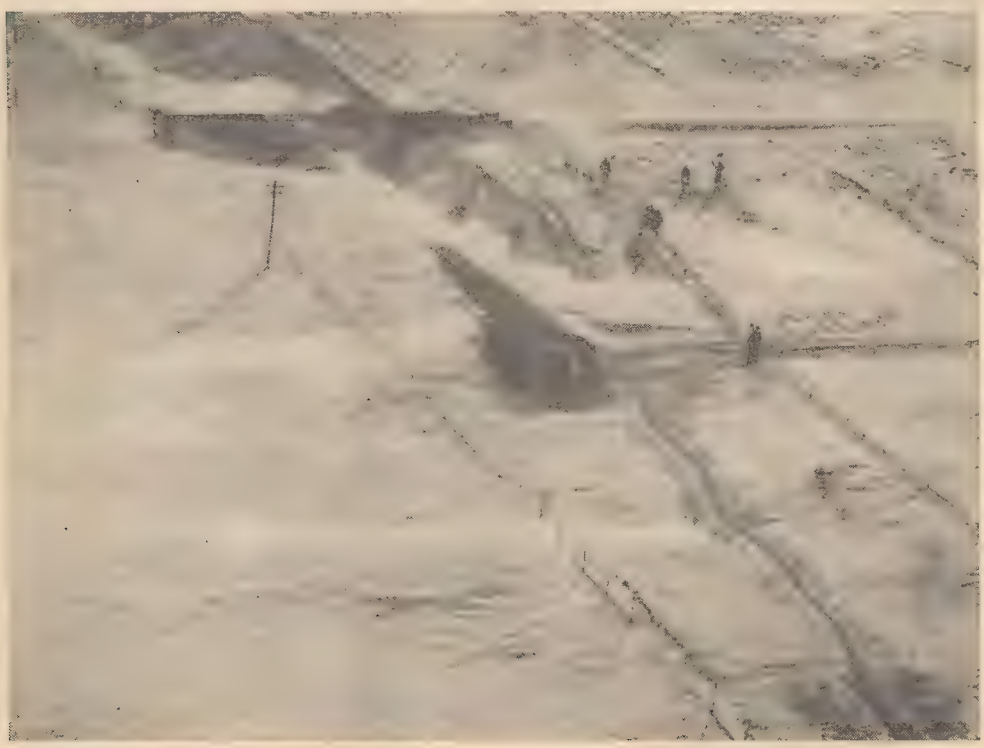
FURNISH data on the Union Pacific's new high-speed livestock service between Salt Lake City and Los Angeles.

Last March the UP started to equip three hundred stock cars with Timken roller bearings. This resulted in such increased business that an additional five hundred are being so equipped. Total cost for the refitting of this second lot of cars is $771,500 broken down as follows: $392,000 for bearings; $50,500 for steel wheels; $41,000 for improved springs, and $288,000 for twin-cushion draft gears. All work is being done in Union Pacific shops, and these cars are being painted the familiar UP streamliner colors of canary yellow with bright red lettering. The cars already reconditioned are being used extensively in high-speed, nonstop Diesel freight service between Salt Lake City and Los Angeles. This stock run has reduced westbound schedules by more than forty percent through elimination of a stopover at Las Vegas, Nevada, for water and feed. Now the Up hauls livestock from Salt Lake City to Los Angeles in about thirty hours, instead of fifty-eight to sixty.

5

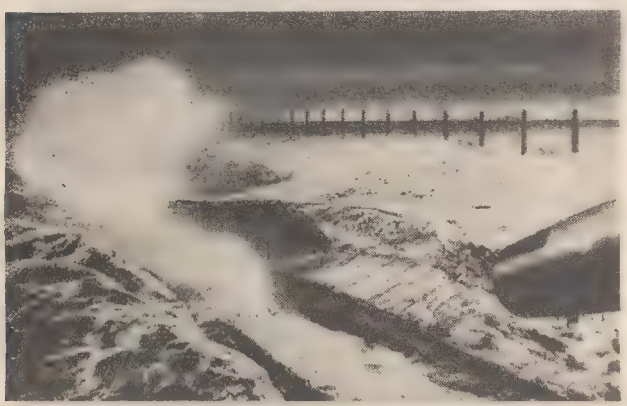
YOUR Nickel Plate roster (October, 1947 issue) makes no mention of Diesel road locomotives, yet I understand that the road now has a number of them in service. Furnish particulars.

Information on this Diesel order had not reached us when we went to press. However, the NKP placed an order for eleven 2000-horsepower Diesel passenger engines with the American Locomotive Company. Delivery started last December and is scheduled to be completed by April of this year. These locomotives will be used between Buffalo and Chicago and



FIFTY-SIX Scots are still talking about the three days they spent stalled in a Glenwilly drift last winter. Aeroplane dropped food and CIG-arets to the low-roaders

AEROPLANE jet engine provided novel solution to severe winter conditions pictured on the opposite page. Its fiery exhaust cleared drifts from four to eighteen feet in depth



CLOSEUP of snow thawing device. British Islanders hope they'll have no need to use it again this winter

Cleveland and St. Louis, resulting in reduced running time for passenger trains between these points. With the twenty-five new passenger cars now on order, including ten coaches, thirteen 10-Roomette-6 Double Bedroom cars and two 5 Double Bedroom-Diner-Lounge cars, the Nickel Plate will have completely streamlined modern passenger service. The eleven new road locomotives will bring the NKP's number of Diesels up to fifty-four. The road bought ten 1000-horsepower switchers in 1942, and in the latter part of 1946 ordered thirty-three additional 1000-horsepower switchers. These engines have completely Dieselized yard service at Buffalo, Cleveland, Fort Wayne and Chicago. Facilities to service Diesel passenger and switching locomotives will be constructed at various points on the system at a cost of about half a million dollars. These plants will include a large service shop at East 75th Street and fueling installations at Ivanhoe Road in Cleveland, and other necessary facilities at Buffalo; Conneaut, Ohio; Fort Wayne and Chicago. Heavy repairs will be handled at Conneaut.

6

SUPPLY particulars concerning the radio telephone service recently inaugurated on the Twentieth Century Limited, *between New York and Buffalo.*

Experimental operation began last October. Bell System fixed stations for train and general highway mobile radio service were constructed at New York; on a hill near Peekskill; at Kingston; Giulderland, south of Albany; Fonda; Utica; Syracuse; Rochester; and at Buffalo. Calls to and from the *Century* are routed through the nearest of these nine general highway mobile band fixed stations. Transmissions from the *Century,* using frequency modulation and a specially-designed antenna, are on 43.66 megacycles, and similar transmissions from the Bell System stations to the speeding train will be on 35.66 megacycles. The two-way radio service, which will link the *Century* with any Bell phone, will be extended along the Central's main line all the way to Chicago as soon as sufficient Bell System radio stations are available along the railroad right-away, and the railroad plans to expand the radio telephone service to cover its other principal trains to and from Detroit and other midwestern points as soon as technical

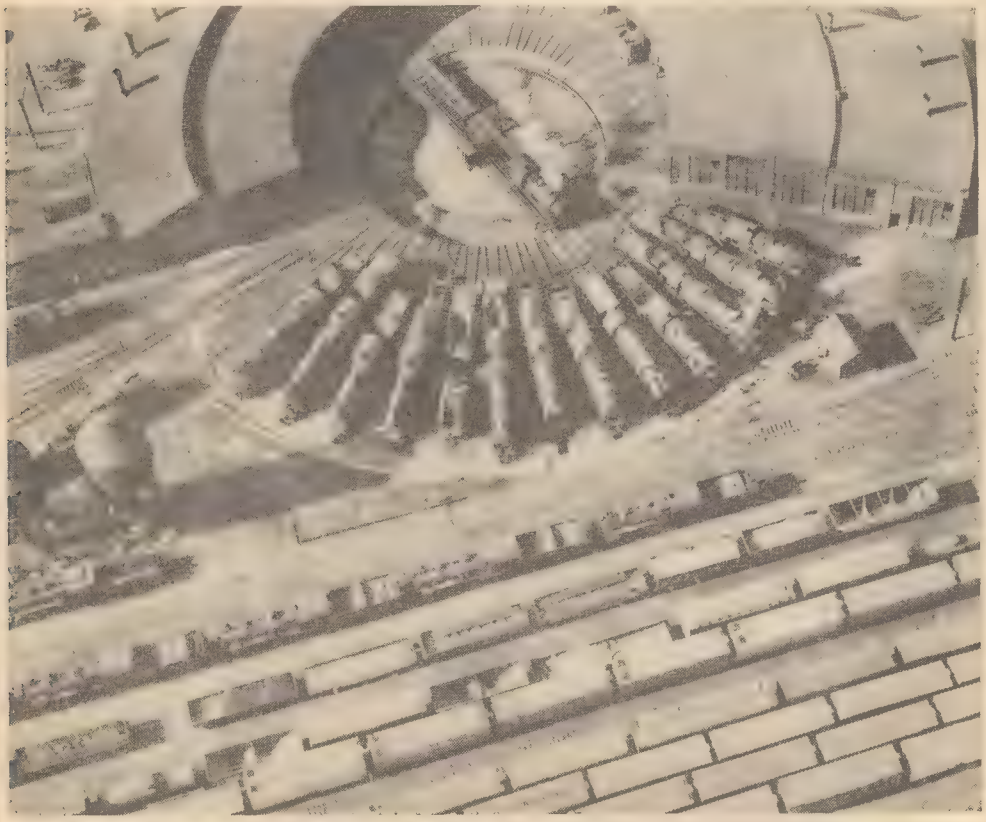
details are perfected. The Central arranged more than a year ago for a special radio telephone room in two new lounge-barber-secretary cars recently added to the *Century's* consist. Arrangements on rates for the service have not been completed as we go to press, but are expected to be based on land rates plus a relatively modest additional charge to cover the radio transmission and reception cost. The new service between New York and Washington is on the channels assigned for urban service in the 152-162 megacycle band.

7

WHAT are the new features of the motors that General Electric is now building for two hundred and fifty post-war New York City subway cars?

Principally their allowance of high dynamic braking rates. Each car will be equipped with four 100-horse-power 300/600-volt self-ventilated motors. Each motor in conjunction with the braking control will brake cars at a three mphps rate from a top speed of 42-mph without exceeding conservative 40-volt peak per commutator bar. If speed of braking begins over forty-three mph the field is automatically weakened to keep the peak volts per bar to a safe value with the least loss of braking effort for a constant braking current. Even about forty-three mph the permissable deceleration is never less than seventy-three percent of the three-mphps maximum rate.

The motor is designed with armature windings having one turn per coil to obtain the best commutating arrangement with conductors. Commutating duty is



THE SPOKES that make the railroad wheel go round. Pennsy power on the Jersey meadows, south of Newark turnpike

PHILADELPHIA'S Budd Company will build ten of these streamlined stainless steel subway cars for New York City's Eighth Avenue Line. What; no observation platforms!

most severe when braking at high speeds and is kept within safe limits by using constants which favor this condition. Commutators for these new motors are built and processed to narrow limits of eccentricity in order that brushes will ride the commutator satisfactorily at high peripheral speeds. The stresses in the commutator due to high speeds and heating are such as not to deform the commutator enough to produce detrimental sparking. The commutating pole pieces and frame are designed for low magnetic saturation of steel in order to avoid under compensation at the maximum loading during period of high speed braking. This minimizes sparking at the brushes as well as maintaining the maximum width of black band throughout the operating range as a motor.

Change from two axle-hung motors to four motor truck-mounted was necessary to obtain maximum rail adhesion at a greatest accelerating rate of 2.5-mphps and maximum braking rate of three-mphps.

8

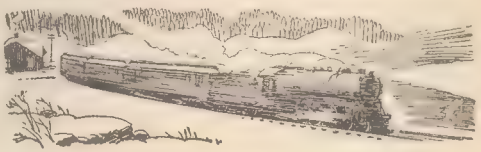
WHAT has become of the Alton's Number 50, America's first non-articulated Diesel locomotive in regular passenger service?

Renumbered 1200, with her streamlined front removed, and sporting a new coat of red, maroon and gold paint, the 1800-horsepower unit that once powered the *Abraham Lincoln* and the *Ann Rutledge* between St. Louis and Chicago is now busy running back and forth in local freight service between Bloomington and Joliet, Illinois.

9

HOW are crews selected for the operation of the Freedom Train?

This would depend on the operating practice of the railroad on which the Freedom Train was being run, as each railroad on the route of this special train employs its own crews. On the New York Central the practice would be to select an engineman and a fireman from the extra list, and their names would not be known until the day of their assignment.



LOCOMOTIVE OF THE MONTH:

Baltimore & Ohio's Adopted Steam Power

DIESELIZATION of the Boston & Maine and Seaboard was turned to good account by the Baltimore & Ohio when the latter road dipped into the second-hand market recently and came up with thirteen handsome Mountain type engines from the ***Route of the Minute Man***, and ten high-speed articulated giants previously used in SAL's heavy

manifest service. The B&M locomotives, originally numbered 4100 through 4112, have been designated B&O's T-4 Class (Numbers 5650 through 5659) and T-4a Class (Numbers 5660 through 5662). Similar in all respects except for a slight variance in the firebox heating area they are now assigned to the Chicago and Akron Divisions, supplementing the road's T-3 Class, used there for fast freight service. The simple articulated Seaboard locomotives, originally numbered 2500-2509, are now B&O's KB-1 Class (Numbers 7700 through 7704) and KB-1a Class (Numbers 7705 through 7709); the two lots differing in wheel spacing, stack placement and overall clearance. They have been assigned to high-speed freight service between Cumberland and Brunswick, Md.

The Super Liked Fried Chicken

By CHARLES A. ROACH

WELL, of all the queer and amusingly tangled affairs I ran into in bygone years, this tale of fried chickens, and the mysterious source from which they came, is rather hard to beat. Not, mind you, that I'd refrain from shoving a lonely frier under my coat and making a hidaddy for the crummy and a hot frying pan. But to get the brass hat enmeshed with the fried chicken feast was something else again, and very rare indeed.

The case occurred way back in 1891 during the fall of the year. I had been working two or three months out of Oelwein on the Maple Leaf while the grain rush was on, and decided to head south for the winter. I picked up another young boomer like myself named Danny Sargent. Danny was from Alabama and also drifting south for the cold months. Each of us had a fair-sized stake, for boomers that is, and felt kind of independent and sassy.

We decided, however, to ride the Rock Island out of Omaha and look the pike over with an eye to trying it on our next trip north the following season. Riding into Fairbury, Nebraska, we chewed the fat with a jolly crew who gave us the dope that brakemen were badly wanted. If we had the urge, we could go to work right away. And since the Rock Island had just built west into Colorado, there might be a chance for a smart young brakeman to become promoted to conductor, providing

I DID fine until I grabbed the old boy himself, when he let out a loud squawk

he would stick to his job and hit the ball.

Now such dope gave me a big thrill. I thought there was no man alive that knew more about railroading than I did. It was only much later, of course, that I learned snch thoughts run through the mind of every young rail who's ever worked a day, setting brakes and flipping links up to drawhead where he has a pin cocked for coupling. But anyway, it was about eight that night when we pulled in. I headed for a beanery with one of the friendly crew, a guy named Doerman.

After we'd sat down and ordered, Doerman began telling us about the thing that happens every so often on all railroads—the big switch in brass hats. It had occurred just a week back on the Rock Island and the new super was a terror to everyone who didn't hit the ball. Besides that, he issued orders via the bulletin board and kept the callboy so busy putting up new orders that the kid hardly had time to call crews. So the boy quit. Added to this disorganization, there was hell along the pike because, although the super had a private car for his trips over the line, he preferred to ride freights, and at night. He wanted to watch crews to see if they knew their business; if they didn't, he fired them on the spot.

Well, Danny Sargent and I became so interested in all these doings, we worked up a feeling that we should keep away from the T's office. We figured we might get tied down, if we didn't catch another train out of town quick as we could. There was a lot of railroading I'd never seen and besides I'd no yen to get caught in the wholesale firing of trainmen. I was nearing my nineteenth year and felt pretty big and smart; but there was no future in letting this fellow ruin my confidence. My mind wandered off to the south.

Yet, before I could clear out of the beanery, in drifted a big long-legged shack, who sat down close to me and ordered coffee and doughnuts. Then he turned to me, his long face broken by a smile.

"Travlin'?" he asked. His eyes were big and kindly. It was a droll, amused grin an expression that showed he took life with a grain of salt; let the world roll by. I was sort of mesmerized.

"Yep, just boomin' south," I replied. "Thought we'd drop in for a feed an' see what kind of a burg this place was."

By this time, the fellow had been served his coffee. Picking up the steaming Java, he sipped at it thoughtfully. Then turning that long, calm face toward me, he said, "You should try this pike. They need men bad. I'm called for an extra and the callboy is out hunting for brakeman. I'm parlor man for one of windiest conductors in America, but he's a square-shooter and will back up his men if they're in trouble. Why don't you give the Rock Island a whirl If you don't like it, you can quit after one trip. Or," and he smiled a twisted grin, "get off anywhere along the line."

Danny chuckled as this big long-legged shack talked "What'll we do?" he said. "Ask for a job or not?"

Before I could make up my mind what to do, the newcomer broke in. "You two just follow me over to the crummy and I'll introduce you to my boss. Name's Tom Seaton, and he's a great talker. Always making everybody laugh, but knows his onions. I'll hire you both and get the callboy to sign you for the trip. What do you say?"

His sly grin won us to try it for one trip anyway.

SO OVER to the crummy we went, with the long-legged brakeman spouting about the road being a chance to be set up running if we showed responsibility and sound judgment with some good railroad knowledge. On our arrival at the crummy, we climbed aboard and were met by Tom Seaton. He was grinning from ear to ear.

"Well, Shang, what have you here, two new brakemen?" he asked. He was eyeing us like two escaped animals from the zoo.

Shang beamed slowly and admitted he had hired us. In the exchange of names we learned our new friend was Silas "Shang" McCoy. Having been warned by Shang that Seaton was a good talker and joker, we were soon feeling okay about trying the Rock Island for one trip at least. Maybe we'd stick longer if things went along fine.

Shang ran over to the yard office and found the callboy, who came over and signed us for the run. There were three shacks then on freights, all hand brakes with link-and-pin couplers, no air except occasionally a foreign car which was placed next to the hog, if the hog was equipped for that service. Some of them weren't.

Seaton ordered Danny to take the head end, while I rode in swing position. However, he warned me to ride in sight on top, since the new super was liable to be somewhere along the line. And if he caught a swing brakeman riding in the crummy, the fellow'd be fired by wire.

Finally we got out of town, heading for Philipsburg, Kansas, the west end of the division. Our train consisted of empties for the many elevators and grain-storage warehouses along the line. There were also two zulus next to the crummy, leaving us some forty-five empty cars to peddle before reaching the far end of the run.

A short way out of town, Shang showed

up and began talking to me about how things were handled each trip.

"This pike is a funny proposition," he drawled, "which plenty of new trainmen don't understand. You see the road has just been finished into Colorado, and there is plenty of good land out there which the nesters and farmers from almost everywhere wants to settle on. So, don't be surprised if we pick up a little side money along the line. I'll tell you one way we make some easy. You see every elevator and grain warehouse drops loose grain around and nesters moving past each station sometimes let chickens escape. The birds take up their homes near the loose grain, and there they stick all season. The old hens lay eggs and hatch young chicks and the flocks get bigger and bigger, until trainmen have a hell of a time pulling cars out without killing a few. At night the chickens roost on brake-beams, truss rods or any place handy and settle down for the night's rest. And, of course, no trainman would be so hard-hearted as to drag a car out with the innocent things riding the rods, where they would be in danger of getting killed. For that reason we must use caution before moving any cars at elevators and grain houses."

I wasn't one to argue against such be-kind-to-animal's tactics, so I gave out with an okay and a deep horse laugh. "Somethin's up," I added. "There's a light showing from the cupola."

"Yep! we'll be rolling into Thompson soon," Shang replied. "You'll pick up the agent's switch list and I'll drop off and have a talk with Shorty." I knew he meant Danny.

The skipper came running along filled with chatter about having to get in the clear for Number 7, the westbound varnish. That was long before the title of that train was changed to the *Rocky Mountain Rocket,* Number 8 eastbound. We cleared Number 7 without delay and, picking up the switch list, I crossed over to where Danny had the hog coupled onto a string of cars alongside the granary. I could see Shang's light as he moved along beside the cars, where sunflowers stood six or seven feet high and were hard to shove through at night.

As I came close to Shang, he called, "Here's a chicken sack, Slim. Put the strap over your shoulder and every young fryer you can pick up and save from getting killed by the wheels shove in the sack alive. They'll not make much noise nor try to get out. But for gosh sake don't grab a big her or rooster. It's them old tough birds that caused the notice on the bulletin board stating that trainmen reported for taking chickens will be discharged by wire."

Shang chuckled as he stopped to look under a car. I was right behind him as he grunted, "Look! at them little innocent fat rascals all setting up there on a truss rod beside their old mother. Now if we were soulless and mean, we would just drag the cars out and let them little misguided things scatter along the track and get run over. It's a shame," he moaned.

THE SAD sight Shang had pointed out was some ten or twelve nice frying-size pullets roosting on the truss rod of a loaded car, unaware of danger of being shoved into a gunny sack to save them from being run over by the car wheels. Yep, Shang was a very sentimental guy, with a big wide mouth for eating chicken.

After we completed the switching and the chicken lifesaving mission, Shang and I walked back beside the empties until we came to the last one. My bag was weighted by some seven or eight birds. Next to the zulu, Shang shoved the door nearly shut and began to twist the heads off the chickens, throwing their noggins out in the weeds. He placed the chickens inside the empty car, where they could bleed.

After they were all beheaded, Shang shoved the door shut, and our hogger called for a signal with two short toots. Shang gave him the high sign and we crawled out on the main as if the whole

damn pike belonged to us. Since it was a nice fall night and the stars were shining brightly, Danny drifted back to talk about what I thought of the job. I agreed I felt quite satisfied as things were.

Well we soon made Mahaska and did our regular switching. Again we went to the aid of a good number of young chickens that hadn't been taught to roost on some place besides truss rods or brake beams. It was there that Shang explained to me how the bulletin order came into existence.

"One night," he related. "I was doing my kindly act of getting chickens off the rods while we were at Formoso a few stations west, when I came upon a whole family roosting on the rods of a loaded car. There was a big old combed rooster sitting on one rod and right beside him was fifteen young fryers. The hen was sitting beside her old man, like a married couple admiring their brood.

"So I began very carefully to pick 'em off. I did fine until I grabbed at the old boy himself. I missed getting him by the leg or neck and it was then he let out one of the loudest rasping squawks I've ever heard from an animal. It was along about one a. m., and I gripped him only by a wing.

"By the time I got him out from under the car and into the sunflowers where he wouldn't get run over, lights were showing in every house window on both sides of the track. Men started shouting to each other about chicken thieves. Then the dogs began barking. In a short time I had the whole town alarmed fighting that old dominecker rooster.

"So the next day the agent reported that some trainman had been stealing chickens from under grain cars where they roosted. This new super went wild and put out the bulletin order to stop it. Of course he don't understand the situation, if he did he'd raise my pay!" Shang laughed loud and long. "Yep! never grab an old dominecker if you can help it. Let him ride to his death, it is safer for you."

We had no further trouble with saving chickens and rolled into Bellville, a junction where the Kansas City line joined the Colorado Division. It was near midnight and the skipper decided we could eat while waiting for an extra from the west. Our fireboy was taking water; the hogger was doing his usual monkey-wrench work.

Later on an extra arrived from Kansas City with more empties for grain, which they would peddle along the line ahead of us. This would knock any chances of Shang and myself from saving little fryers, since every crew I learned were graduate lifesavers. Shang had plenty of time to gather his dead chickens from the empty where we had hidden them. He had a good-sized lard can for heating water on the crummy stove which he also used for scalding and cleaning them. So once we finished eating in the beanery, I drifted back with Shang to help undress the poultry. There were butchers in Fairbury and Philipsburg ready to pay cash on the spot, a good quarter each for dressed fryers.

At that rate, Shang cleaned up three or four dollars every trip. With the hobo money picked up, a Rock Island shack was not doing so bad. Then, too, there was always a chance to pick up an extra dollar or two making switching moves for elevator men or grain unloaders at stations, even if we had to wire the DS that a hotbox delayed us at such and such a milepost or station.

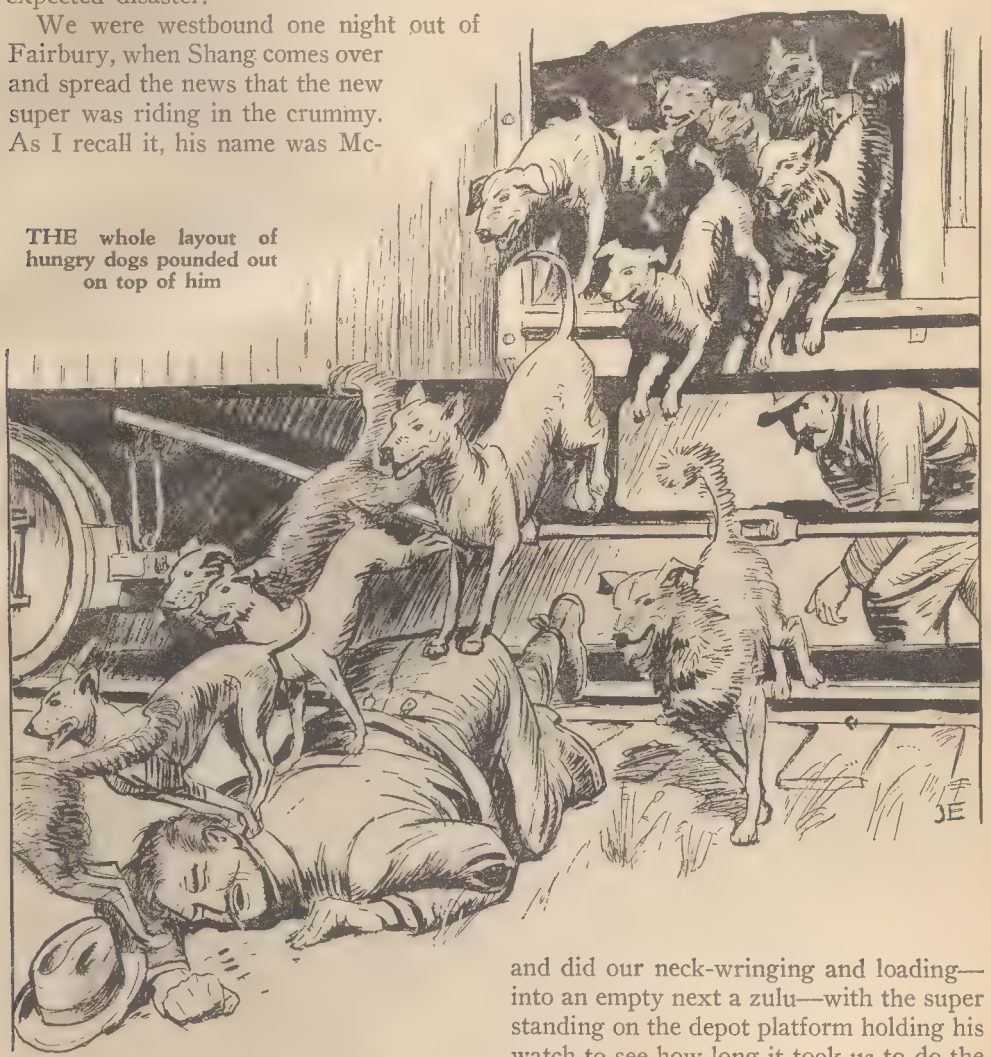
ONE THING surprised me though when it turned daylight during my first trip over the division. That was the large collection of dogs around every depot. They were busy smelling every man they met and mingling with passengers when a varnished rolled in for a stop.

Shang explained it. "They're strays. The nesters in wagons you see traveling toward the land that's opening up lose a dog here and there and then, too, the men in zulu cars get out at stations to ask questions or obtain food, and their dogs follow them, only to get left when the train

pulls out quickly. If a feller could sell the dogs, he coud clean up because the agents along the line are kicking about their being so many. But the company won't do anything about the dogs. That way they just keep increasing."

Anyway, Danny and I began to like the job. We had just decided to try to stick to it all winter, when we ran into an unexpected disaster.

We were westbound one night out of Fairbury, when Shang comes over and spread the news that the new super was riding in the crummy. As I recall it, his name was Mc-



THE whole layout of hungry dogs pounded out on top of him

Cullough. When on a night trip he took one of his clerks with him to do the writing, making notes of the changes he wanted or men fired. He was a tough old bird on firing men, so I heard often.

We stopped at Thompson to set out loads for Omaha on the pickup track and put empties in for loading. We also had in mind to pick up a few rod riders that had no tickets nor transportation for going anywhere. As Shang remarked, "We got orders not to carry any passengers. That leaves the matter up to us, to sack these travelers before they get hurt."

Fortunately we picked up sixteen there and did our neck-wringing and loading—into an empty next a zulu—with the super standing on the depot platform holding his watch to see how long it took us to do the switching. Naturally he was on the wrong side of the track to see how we worked, with the chicken bags, that is. We made Mahaska for an extra east, did our switching and coupled up hurriedly to get rolling for Narka. The super had been giving

Windy advice about taking too long a time switching at stations.

Oddly enough, the clerk the super had with him was out in the weeds and sunflowers snooping around where we picked up cars. Since we pulled out hurriedly as directed, he couldn't make the rear end for the sunflowers were so big, that he fell down trying to get to the crummy. He was yelling all the time, but nobody stopped the train for him to get aboard. Though Shang heard the shouts and knew just about who it was, he merely chuckled at the guy. For the shack had no lantern to give a stop signal, and besides, Shang didn't want any snooper following him around when he was interested in his humanitarian work of saving little chickens from getting killed by the wheels.

The super was very disturbed over his clerk getting left behind and he wrote a wire for the DS to have the first train pick up his man. When we stopped at Munden where we had another short switching move, he had the op shoot it off before we highballed into Bellville. Shang comes over before we arrived at Bellville and asked me to hustle over to the beanery there and get three or four blackberry pies, for which the cook there was famous. Shang figured on giving the super some coffee and pie if he stuck on our crummy all night.

Well Shang was busy cleaning his friers while the super was rooting around the depot. Meanwhile Windy was in the telegraph office, getting dope on a meet with an extra eastbound for the Kansas City line. I myself was still at the beanery when the meet rolled into the station and stopped. Its entire crew was laughing to beat hell and the skipper was passing around money as he grinned as though over some queer transaction.

I was wondering what was holding up the pies when all of a sudden there was a great yelping and scratching at the front door. The barking was as if a thousand dogs had been turned loose on the town. In another moment the big Negro cook burst out of the kitchen, his eyes bugged out. "Dey got de calf," he hollered, as he tore out the front, headed for the depot and safety. "Lawzy, lawzy, dogs done come an' took de calf, hide an' all. I's leavin' dis job right now."

THERE I was with no pies. The Kansas City crew that had been laughing ing a few seconds before sat with wonderment in their eyes.

"Do you suppose some damned fool opened a side door and let them pooches out?" asked the skipper. "His eyes were rather glassy and he started to get to his feet, but stopped quickly. He didn't have long to wait to find out what had happened. In stomped the super, frothing at the mouth. He exploded with a tirade of abuse at the whole crew about loading a big furniture car with stray dogs they had picked up along the line from Philipsburg to Bellville.

The awful thing about it was that the super strolling around the depot, while the crew was eating, had heard all the dogs barking and howling, trying to escape from the big furniture car. Being curious, and also aware that the train should consist mostly of grain loads, he opened the side door to solve the mystery of the barking dogs. And the moment he did, the whole layout of hungry dogs hounded out on top of him before he could get away to clear the door. He'd been trampled and scratched by the dogs' paws, but his pride was obviously the most injured part. Determined to have someone pay for the injury, he rushed over to the beanery to announce the entire crew was discharged.

I learned what had happened. It was only when we'd pulled out of the station headed west that we had only a few empty cars to set before skipping into Philipsburg for a good trip. Windy and Shang were bursting with laughter, which they had to choke down since his nibs, the super was still riding our crummy. And he was cursing out loud because his clerk was left at Mahaska.

We made Rydal first station west, set

out two cars for grain and left two loads handy for an eastbound to pick up, and then hit the high iron for Scandia. We'd no switching to be done there, but picked up an order to meet extra east at Courtland.

It was then Shang told me about the dogs. The skipper on that extra east had fixed it with station agents and small town marshalls to load on all the dogs they could round up at twenty-five cents per dog and lock them all in a released zulu—the big furniture car—which was not allowed for grain shipments. Shang heard there were over forty dogs in the car and the proprietor of the beanery went wild when the hounds swarmed into his backyard and carried off a freshly killed calf, hanging outside to cool before it was cut up and put in the icebox. The dogs being hungry must have smelled the raw meat soon as they hit the grit. They headed straight for it. The owner himself shot across to the depot swearing he'd sue the railroad for his loss and have the man who turned the dogs loose fired.

Seems it was one hell of a scene. The new super kept inside our crummy hiding from all the loud talk, and trouble he'd caused snooping. It looked like this was a bad night for him.

Well, I'm riding high about the middle of our fifteen-car train, as we glide downgrade toward the Republic River, a good-sized creek with a two-span bridge over it. However, none of us knew there had been a cloudburst north of Scandia where we got the meet order with an extra. The op mentioned nothing about a cloudburst or high water in the Republic River, and we never suspected anything until Steve Snowden, our hogger, saw water beside the track as he crossed the Missouri Pacific branch, paralleling the river. So he squealed for brakes and shut off steam and was trying to stop as his eight-wheeler rolled out on the twin spans.

In another moment Steve realized he hadn't a chance. Knowing he couldn't quite make a stop and unable to see clearly with the dim oil-burning headlight, he opened up the throttle and started to run the bridge regardless of where the water was. He never made it. The earth embankment was just beginning to wash away from the bridge pier at the west end. As his pony truck warned him it was going down, he opened up with all the old girl had. His sudden effort to stop was felt back where I stood wide-eyed; and then an equally abrupt lunge forward, as if Snowden had changed his mind. Anyway, the train stopped rather quick. I could hear steam blowing as though a valve was wide open somewhere.

When I walked forward to the head end I discovered that the old 368 was standing on her nose—the tank wasn't visible—and one boxcar was hanging by the coupling pin. One crack and it was ready to drop into the swift swirling water. While I investigated, Superintendent McCullough, Windy and Shang came over the top to see what was wrong.

We heard voices across the water, it was only twenty-five feet to the other side, yelling at us. Still the steam blowing out of the open valve or broken steam pike made such a racket we could distinguish the sounds. Finally the steam subsided enough to let us hear what Snowden was saying: his fireman and head brakeman had reached land before the engine sank in the swirling stream. The super started to make suggestions about warning all trains and wrote a note to the DS, which shoved it into my hands.

"Run back to Scandia," he ordered, "and report the washout and that no one is been drowned."

I CLIMBED along the tops of the twelve cars between our crummy and where I stood, and then hit the dirt and followed on down in jig time. I ran into a surprise. About six carlengths behind our tail end, There'd been a three-bent trestle there when the road was first built and a year or so back it was filled up and the deck timbers taken out. The roadbed had been ballasted and was firm, solid for all-time it was thought. But recent spill had just

proved that man's efforts can be easily overcome by nature. I turned and ran back to McCullough. When I related what I'd found, he swore wildly, scratched his red hair, and climbed up the car ladder still mouthing at all the difficulties he was having this night. Windy and Shang followed the super; I wound up the parade. He returned to where the three-bent trestle had been filled, and realized that all chances of making a report had been cut off.

"Well, I'm going back and start cooking," Shang said suddenly. "We'll have to eat, and I'm hungry right now."

Away went Shang bound for the crummy. Windy stuck a peg in the water edge for a gage, and then stood around with McCullough, hearing nothing but the old man's curses and the running water. Myself, I felt rather dazed by so much queer action in one night. Already the water was running over the swinging track.

I was mighty glad, however that Danny and the engine crew had escaped being dunked or drowned in the dark swirling water. I strolled back to the crummy and Shang put me to work chopping up onions, lettuce, radishes and celery with a hand chopper into a wooden bowl. Shang wanted it cut up fine, as salad for his nibs, the super. He had a good fire going in the stove and a can of grease heating for frying chicken. Meantime he was wearing a white apron and preparing biscuits. Just what kind of a job he would do at such a business, I only wondered. But I kept on chopping salad.

The super and Windy soon came back to the crummy, just as the two zulu riders showed up, wanting to know why we had stopped so long. When Windy told them, they set up a howl, they hollered to get off the dump before it was washed away. The super entered the crummy in disgust, but suddenly he smelled the fried chicken.

"My gosh! that odor is good. What're you men cooking?" He stood sniffing like a hungry pup. "We're cooking some frying-size chickens I obtained off one of them zulu men," Shang replied with a chuckle. "They're very fat and nice, so they should make mighty good eating."

The super walked into the wide end of the crummy where we usually set the table for meals. Windy came in after a session with the zulu men. With a sigh of indifference he remarked loud enough so all of us could hear. "This is a very bad situation, but not any worse than the Kiowa turnaround."

Nobody spoke for a second. Then the super asked. "The Kiowa turnaround? What happened to it?"

Windy gave a grunt as if surprised at anyone not knowing about the cockeyed yarn. "Well, the water isn't rising," he said, "and since we may be here for quite a while, we might as well talk. So here's the way I heard the Kiowa tale.

IT WAS on the Santa Fe not long ago that a crew was ordered out to run about twenty miles and pick up a train of stock. The engine was coupled onto the crummy with the pilot bar, and was backing up so it would he headed east after getting the stock. But on the way to where the stock waited, the crew backed into one of those big whirling cyclones they have down there and there was also a great flock of those blackbirds flying about as if trying to escape the oncoming wind. Then suddenly the engine was engulfed in the black whirling dust and rain. The engineer, though blinded by all the circling blackness, kept his engine backing up and soon the air cleared.

"The crew thought everything looked okay but that was before the fireboy went to put in some coal. The kid discovered that the coal was gone. Instead there was the tank filled with dead blackbirds. Having no choice, he shoveled in birds.

Now, although the hogger seemed amazed at the blackbird fuel, he wondered even more when soon afterward he saw a whistle sign for a station. He whistled for the town, and backed to a stop in front of the depot. There he learned he was right back in front of the Kiowa station. What had happened was the cyclone had picked up the entire crew, engine and crummy,

whirled them around, and set them down on the track without getting a wheel off the rails. Every man around the town came to see the tank of blackbirds and marvel at the strange occurrence.

"So that, sir, is what railroadmen out here call the Kiowa turnabout."

I had stopped chopping salad listening to Windy. The super held his breath, then burst out in a wild *Haw! Haw!*

"That's the damndest cockeyed tale I ever heard," he roared. "It's impossible and anyone telling it knows it's impossible to turn an engine around like that and . . . fill the tank with birds." Yet he snickered amusedly.

Well, Shang soon had six chickens fried, after rolling them in beaten eggs and cornmeal. Then he set his Dutch oven on and began stoking the fire. There was a short wait until he ordered us to set the table: long boards on two small trestle like legs and a table cloth. I dished up the salad then and Windy put knives and forks around, and soon Shang came out with a pan of hot biscuits, which he set before the super along with a panful of hot fried chicken.

It was astonishing how that duffer went to work on the little birds Shang had rescued. He never asked a thing he was so busy. After stuffing his face with one, and reaching for another, he chuckled, "The Kiowa turnaround. Now that is one cockeyed yarn for the book." He would lean back and laugh, again and again.

Windy looked sidewise at Shang and winked wisely, as the super opened hot biscuits and filled the inside with fresh country butter and bit into them. His eyes sparkled with delight; the darned things were really the best eatin' I'd ever run across. The super never used his eating tools at all; but he kept reaching for more fried chicken.

When we'd cleaned up everything, Windy ransacked a locker in the crummy. He found some old stogies, which he passed over to McCullough. From then on the crummy was one fog reeking dump with smoke strong enough to kill a cat. I went out for air and check the water level.

It was falling very fast. By daylight, the entire rails and a few ties still hanging showed between us where we'd been marooned and where high ground lay. I still had the note McCullough wrote to the DS. So scrambling over the wet rails and muddy ties, I went on to Scandia.

The op told me the dispatcher was wild about where he had gone. He'd been holding the extra at Courtland, which we had orders to meet before we ran into the river. I was stuck there answering the questions the DS asked, until I heard a voice I knew quite well laughing outside the office door. It was the super. He and Windy had crossed the washed-out trestle and walked to the depot to relate what had happened. From then on it was work-train orders and official business, and the end of my story. We lived in the crummy for three days before being pulled off the river.

The last thing I recall about the super was his remarks to Shang.

"I want to compliment you, young man," he said with a chuckle, "for the excellent supper you cooked last night. Those biscuits were super-fine" he'd eaten six or seven with gobs of country butter between—"and the chicken was delicious." He took care of three of the six Shang had cooked, besides salad and a big tin cup of black coffee. Turning to get on a work train going back to Bellville, he said: "Yes, young man, you must be a magician to bring out such food when we were marooned and I for one looked forward to a supperless wait."

Shang grinned slyly at Windy after McCullough left said. "Magician. Gosh it would take a magician to keep that guy filled up with hot biscuits and fried chicken. Darned if I ever saw a man eat more than he did. And . . . them chickens his bulletin order referred to as stolen. Gosh, I'll never forget how he tore into 'em!" He bent double with laughter.

But that night Danny and I dragged our time. One narrow escape to each pike was enough.

Brill: Pioneer Builder of Streetcars

THE Brill Company—whose name has become synonomous with streetcar construction — dates back to 1868, when J. G. Brill and his oldest son, G. Martin Brill, were employed as foremen in the Murphy & Allison car works in Philadelphia. Along with Billmeyer & Small of York, these were the only railway car builders in the State of Pennsylvania. Then as Murphy & Allison decided to quit the field, the Brills established a firm of their own to continue their car construction.

With just about one thousand dollars in capital, the Brills leased a small shop at 31st and Chestnut streets in Philadelphia, and opened their first shop. Their earliest models were a pair of small incline cars for the Clark Summit Incline Railroad. After their delivery, former patrons of the Murphy outfit sent their orders to the Brills, with the result that by 1872 they were forced to purchase a lot close to their shop to build a brick office and shop. Work continued to pile up. To obtain more capital the owners took in James Rawle as partner.

The Brill firm accepted orders for any and all types of cars, many of which other builders refused. In this way they were able to publicize their name and reputation among railroads and railwaymen. Mr. Culver, prominent Brooklyn financier and developer of Coney Island, submitted an order for steam-road cars, which had been refused by numerous others. Because they took on the job, the Brills were later given the major portion of the Brooklyn steam lines car construction.

While the Brill company was still plying its trade as a horsecar builder, it received a tremendous order from the Tramway Rural of La Plata, Argentina. Four hundred cars were asked; passenger cars of open and closed types, funeral cars, cattle cars, even sleepers. All were bound for usage on the seventy-mile run, powered over the distance by horses; there were four shifts of chargers during the run. It's no surprise to find these were the only sleeping cars ever designed for a horsecar line.

Even before 1880—the date of the large Argentinian order—steam equipment was

TYPICAL of Brill in its heydey. Greenhued New York Railway Number 426

VETERAN of two wars. Brill delivered Car 20 to the Philadelphia Rapid Transit in time for boom service during World War I; during recent emergency, she was resold for local traffic

added to the model types outshopped by the Brills. In later years they occasionally supplied steam roads with coaches, but in most cases their output consisted of lighter equipment than that used by the average railroad. A claim to streetcar fame was the clerestory roof incorporated into car building in 1873, which Brill still boasts it originated. This variation is the familiar *monitor* or deck roof in which the central portion is raised above the level of the remainder of the roof and glass windows with ventilators installed all the way around. From 1890 to 1910 almost all of the electric railway cars boasted this skylighting.

With the coming of cable cars in the 1880s, the Brills added them to their catalog. Business increased to such an extent that in 1887 they incorporated themselves into the firm of J. G. Brill & Company in Philadelphia.

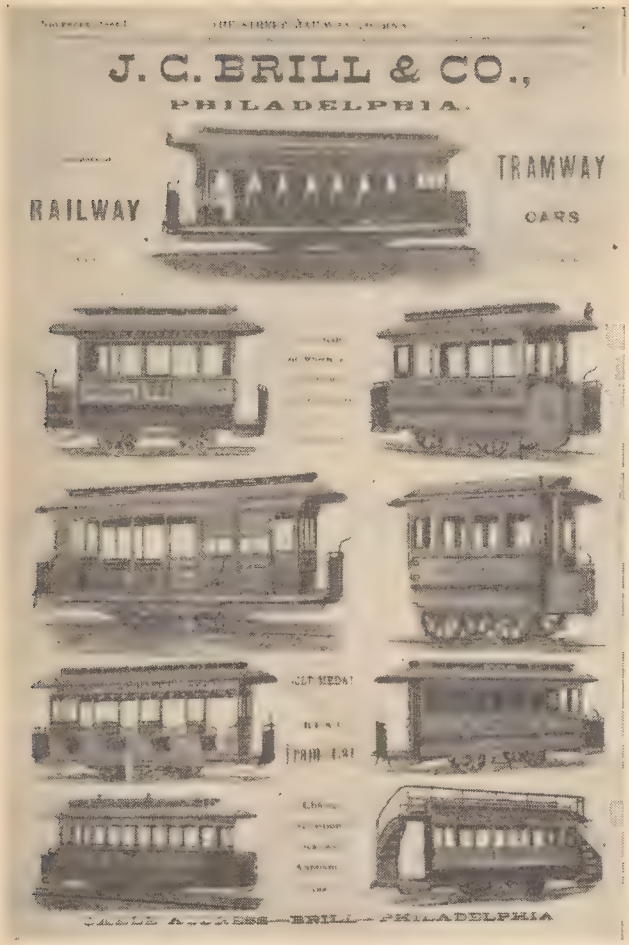
John George Brill, the brilliant first president and the man after whom the firm was named, hardly lived to see it enter the era of electric railways, for he died the year after incorporation. His son, G. Martin Brill, succeeded him as president.

PUTTING aside the very debatable question of where the earliest electric line ran in North America—whether at Richmond, Va.; Toronto, Ont.; Kansas City, Mo.; Baltimore, Md.; or Scranton, Pa.—the Brill Company obtained their first order from the Suburban Railway of Scranton, the city which later became known as *The Electric City*. Since it was the first commercial electric built by Brill, this car naturally followed the horsecar styles with which its builders had been familiar for many years. The main problem was the placement of the electric motor, which would take current from a wire running up to a roller attached to the overhead circuit.

The first model had a Van Depoele motor set on the floor of its front doorway, with sprocket chains for transmission to the wheels. While this plan of motor actually worked, it was a far cry from later designs—still in practice—of attaching the motors to the trucks underneath the car. It is said that the name motorman was given to operators of electrics because they stood beside the front-platform motor on these early cars.

With the increasing popularity of juice lines, the Brill plant again grew too small for its production line. In 1890 the firm moved to an 18-acre property in southwest Philadelphia, at the junction of the Pennsylvania and the Baltimore & Ohio. This located it in the Mt. Moriah section of Philadelphia.

Brill constructed the first electric motor truck in 1888. This was an adaptation of the horsecar running gear, with the motor being carried by the four-wheel truck frame, a practice followed thereafter. And along with the boom in electric railways came a demand for longer car bodies. It was then the builders discovered that the height of cars could rarely be increased, the width was limited by track gage, and radii of curves had to remain materially unchanged.



FULL-PAGE Brill advertisement, run in the November 1884 issue of *The Street Railway Journal*, boasted a classy group of cars, one of which copped a gold medal in the Chicago Exposition the previous year. *The Street Railway Journal* later became *Electric Railway Journal*; as *Transit Journal*, it passed out of existence in December 1942

The problem of how to find room for two smaller trucks under such narrow cars and make room for motors arose. The first practical solution was found when John A. Brill invented the *maximum-traction* truck. In 1890 John Brill devised the first of this type truck; in later years it was commonly used on all city cars where speed was not essential.

As designed, the maximum traction truck consisted of a pair of ordinary-sized driving wheels and a pair of pony wheels, the weight being distributed so that the large wheels carried the greater load, the pony wheels just enough weight to enable them to guide the car along the track. A single motor was carried on the truck between the wheels. Originally, the plan was to use the small wheels as pony wheels at the head ends of the car, in later years some cars used the maximum traction truck with the large motor wheels at the front ends.

Only two years ago, we referred to this practice as having the trucks *reversed,* and several readers claimed we were in error, that this was the intended means of using them. We're still not convinced.

The Brill Company designed this and many other type trucks for electric railway equipment. Far surpassing all competitive car builders in truck output, its business was so extensive that during the early 1900s the company began buying up other builders in various parts of the country. This cut the freight charges for shipping cars and equipment to remote parts of the continent.

Sometime during 1902 the American Car Works at St. Louis was purchased, and thereafter its operation directed by Brill. In 1904 the Kuhlman Car Company of Cleveland joined forces; during the same year, the Stephenson Company of Elizabeth, N. J., was purchased by Brill.

By 1906 the oldest passenger car building firm in the United States—the Wason Manufacturing Company of Springfield, Mass.—was taken over by Brill. These and the other firms merged with the Brill group continued to operate under their original names, however, for many years thereafter.

IN ADDITION to the excellent truck designs produced by their plant, other popular Brill features included the semi-convertible car invented by John A. Brill in 1900. The windows of this car were constructed so as to be capable of being raised up into roof pockets, an especially desirable feature in warm weather. First car so equipped was run on the Washington, Alexandria & Mt. Vernon Railway.

The first of the once-popular "hobble-skirt" cars was outshopped by Brill from plans submitted by New York Railways Company, in the remarkable time of only eight days. Its exceptionally low flooring required that the maximum traction trucks be placed with the small wheels on the inside, instead of the way they were originally designed. Built along the same lines was a doubledecked hobbleskirt car and a four-wheeled battery car.

After receiving the sample cars, however, the New York Railways proceeded to copy them in their own shops. Over one hundred and seventy were produced along the lines of the samples submitted by Brill.

Tuned with the growing demands for gas buses, Brill Company added these coaches to their regular line of stock. Dating from 1910, the volume of buses outshopped by Brill increased steadily with the years. Just as the first electrics were modeled after the horsecars, so the first gas bus was built with a body strongly resembling the streetcars.

While bus competition was just starting, C. O. Birney designed his famous *Birney* car with the collaboration of the Brill subsidiary, the American Car Company of St. Louis was largely responsible for the early development of this single-trucked model of standardized design which became so popular after 1916, on lines not heavily trafficked. With the body seated on a Brill 78 M-type truck, cars of Birney design were shipped to all parts of the United States, many to distant countries. In the five years after the first Birney car was produced, the Brill Company and its subsidiaries had received orders for more than three thousand cars of that design.

The largest single order of railway cars on record was received by the Brill Company in 1923. Five hundred and seventy-six streetcars were ordered by the Philadelphia Rapid Transit Company, many of which are still in service today in the Quaker City. The major portion of these were of the center-door *Peter Witt* type; the remainder, steel end-door electrics—520 passenger vehicles in all. To these were added plows, snow sweepers, work and dump cars, cranes and line cars. The grand sum was 576 in the single order—enough to supply a dozen streetcar companies of average size.

During the same year—1923—Brill brought out its first rail-less car, known today as the trackless trolley. The first built were a pair for the Virginia Railway & Power Company for operation on a double overhead wire on an extension of the Walnut Hill line in South Petersburg, Va. Several orders followed for trackless trolleys, Baltimore and Philadelphia companies as buyers.

GAS-ELECTRIC Number 402, a relatively silent product of the Roaring Twenties. Bound for Long Island, she awaits a pickup at the Brill plant

However, the time for trackless vehicles was apparently not yet ripe. Most of these early trackless ventures fell by the wayside. Not until the 1930s did railless trolleys come into the limelight again, with large-scale orders being placed for this equipment.

urban and city railway center in the United States. Many of the fine photographs reproduced on their pages cannot be duplicated elsewhere.

During depression years, Brill's production fell off like so many others. The Stephenson plant at Elizabeth had ceased

BRILLINER **on the Jersey Coast. Despite the fact that its order for twenty-five streamliners was the only one Brill received, Atlantic City is mighty pleased with its streamliners: ten years of smooth service**

The J. G. Brill Company streetcars and buses have been shipped to all parts of the world. A shop was opened in Paris in 1912, and sales representatives traveled through Europe, Asia, South Africa and Australia supplying streetcars from the U. S. firm and transported by sea.

Undoubtedly one of the most valued productions of the Brill Company in the years they were building so many electrics, was their *Brill Magazine*. Copies are in great demand by railfans today because of the wealth of pictures and the information contained in the pages of the profusely-illustrated slick-paper monthly. First published in 1907, *Brill Magazine* appeared monthly until 1921; after that, issues came spasmodically until September, 1927, when the last magazine was distributed. During its publication their articles covered almost every busy interwork in 1921; Wason and Kuhlman carried on, however, until forced out by the financial panic. Relying mainly on bus orders, Brill stayed open with only an occasional bit of electric railway work. Then in 1931, they accepted an order for the Philadelphia & Western *bullet* cars, among the fastest interurbans ever built by Brill —or by any other builder, for that matter. Capable of a 90 mph. maximum speed, they are still in regular service on the 20-mile well-ballasted double track between Norristown and the 69th street terminal on the Philadelphia city line. There they connect with the Market Street elevated line into downtown Philadelphia.

WITH THE coming of the PCC streamliner, Brill presented an ultra-modern coach of its own design, termed the *Brilliner*. While PCC cars were being

offered to several of the large city lines, Brill put sample streamliners in Cincinnati, Baltimore, Atlantic City and Philadelphia, and had already supplied cars to Chicago and the Capital. But the final result was that only Atlantic City ordered a group of Brilliners. Even Philadelphia, the home of the Brill Company, passed over their own company in favor of St. Louis Car Company's electrics.

Atlantic City seemed thoroughly satisfied with its twenty-five streamlined Brilliners. We hear no plans to do away with the cars at that shore resort, for the public has had ample opportunity to test them against buses. It's true that the cars there are now almost ten years old, yet, even in spite of the most modern features now available in 1947 PCC cars, they can easily hold their own on the streets. The first Brilliner was delivered to Atlantic City in August, 1938, with remaining twenty-four not long thereafter.

Consolidated now with American Car & Foundry as ACF-Brill, the Brill firm took what turned out to be its last large order for electric railway cars in 1941, when the Philadelphia Suburban Transportation Company ordered ten interurbans for service on its four fast lines out of the 69th street terminal, only a few miles away from Brill's Mt. Moriah plant. Delivered in August that year, these streamliners have proved a credit to their builders. And they arrived just in time. After Pearl Harbor, Philadelphia's surface lines had so much business that they pressed into service every piece of equipment, old and new. But even including the ten streamliners, these were not enough. Three old Philadelphia city cars dating from World War I were secured and run as trippers during the busy hours.

But ACF-Brill was now busy with bus and trackless trolley orders. The few rail vehicles they could anticipate being ordered were hardly worth the cost of retaining all the extra equipment. So, with the end of the war, Brill decided against returning to the field of electric railways. In doing this they gave up several fine opportunities. Twenty-five interurbans along the lines of PST cars were sought by the Shaker Heights Rapid Transit, a dozen others were needed by PST itself —to name but two. With Brill out of the electric railway field, their competitors— St. Louis Car Company and Pullman-Standard Company of Worcester, Mass.— were justly enriched.

So passed from the scene of electric traction, one of the foremost car builders of its time. Only a quarter-century ago your writer lived three doors away from the summer home of the Brill family at Bradley Beach, N. J., and don't think that since then he hasn't felt like giving himself a good, swift kick—for not taking advantage of his location to make the acquaintance of his neighbors. The Brills who founded the corporation have long since passed away. But until the last of their cars makes its final run somewhere across the world, their name will remain synonomous with reputable electric railway equipment.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 of Railroad Magazine, published monthly at Chicago, Illinois, for October 1, 1947. State of New York, county of New York, ss. Before me a Notary Public in and for the State and county aforesaid, personally appeared Harold S. Goldsmith, who having been duly sworn according to law, deposes and says that he is the Business Manager of Railroad Magazine, and that the flolowing is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Popular Publications, Inc., 205 East 42nd Street, New York 17, N. Y.; Editor, Henry Steeger, 205 East 42nd Street, New York 17, N. Y.; Managing Editor, none. Business Manager, Harold S. Goldsmith, 205 East 42nd Street, New York 17, N. Y. 2. That the owner is: Popular Publications Inc., 205 East 42nd Street, New York 17, N. Y., Henry Steeger, 205 East 42nd Street, New York 17, N. Y., Harold S. Goldsmith, 205 East 42nd Street, New York 17, N. Y.; Shirley M. Steeger, 205 East 42nd St., New York 17, N. Y. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: none. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given: also that the said two paragraphs contain statement embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities than as so stated by him. Harold S. Goldsmith, Business Manager. Sworn to and subscribed before me this 30th day of October, 1947. Eva M. Walker, Notary Public, New York County Clerk's No. 40, Register's No. 363-W-8. (My commission expires March 30, 1948.) [Seal]—Form 3526—Rev. 7-46.

Car Barn Comments

Steve Maguire

DAYTON, Ohio, once a busy railway center with five or more different companies operating within its limits, saw its last trolley run in the early hours of September 28, 1947, on the City Railway Co. route.

Dayton's first streetcar line opened in 1869 and ran along Third Street. Other horsecar lines were added until 1888 when the first electric cars were installed on what was known as the White Line. The City Railway's service opened in 1885. Dayton's last horsecar made its final run on September 15, 1896. From that date until 1933, trolleys carried on, but in the latter year the first trackless trolley was introduced, as a result of a car-barn fire that destroyed almost all of the equipment of the Dayton St. Ry. Co.

Our thanks to C. B. Metzger, Dayton, Ohio and W. R. Clapper, Troy, Ohio, for letting us know of this changeover.

* * *

OHIO is losing its last passenger interurban line, the Youngstown & Southern, now expecting to cease its passenger service on New Year's Day. But in the case of the Y&S, electric freight service will continue.

The Y&S was originally a steam line; in fact, the southern portion of it is still steam-operated. This division was the PL&B, which merged with the Youngstown & Suburban in 1943.

Cause of the decision to cease passenger service was the competition of an independent bus line which began to operate paralleling the interurban in 1942. Although the bus route lost money for several years, it held on until enough business had been taken from the rail line to cause it to throw in the sponge.

Now, in Ohio, the closest thing to an interurban is the Shaker Heights Rapid Transit, the nine-mile, double-tracked speedway from the heart of Cleveland into the suburban city. The line uses cars that once ran on several interurban routes as well as on Cleveland Rys. Twenty-five streamlined PCC cars are on order for improvement of the present modern service.

* * *

SEVERAL comments on our story of the Hudson & Manhattan tubes have arrived. Felix E. Reifschneider, Orlando, Fla., tells us that the "*uptown* cars originally had but one motor per car, probably the only example of one-motored cars on rapid transit lines.

"Years ago," Mr. Reifschneider goes on, "there were some one-motor streetcars; I know, as we had some when I worked for the Plattsburgh trolley line in New York State.

"I have also heard that the surveyors made some errors in alignment of the tunnels on the uptown section, so that in completing them, they were found not quite in a straight line. This resulted in a jog where the tunnels were actually connected.

DEAD END for Dayton's 652. Once the center of five local railways, Dayton discontinued its streetcar service as of September 28th

VANISHING SCENE: Youngstown & Southern No. 201 passing line car 50 on the outskirts of town. By January 1st, no streetcars should have schedules

"The fact that has really put the H&M on the bum, is the relatively high wages they have to pay employes. It is hard to see why their men are entitled to any higher wages than those of workers in the New York subways. Their jobs are very similar but they receive the wages of standard steam-road employes. Maybe they will have to install MU door control, so that one man can operate the entire train's doors, as in the New York subways. To continue to operate as at present will put them in the hole.

"I have heard rumors that if things get too bad, the Port of New York Authority may take the line over and operate it. They might be in a better position to make the road pay since they would have less taxes to pay, could get money at a very low interest rate, and in case the line showed a deficit, the huge profits from tolls from their tunnels and bridge, could make up the deficit."

* * *

NEWS is news, good or bad, and it seems that this month we are flooded with abandonment notices.

Frederick-Middletown line of Potomac Edison's H&F route ended service September 30, 1947. Car 172, pictured making the last run on the Hagerstown-Williamsport line in Electric Lines last month, had the questionable pleasure of making the last trip on the Middletown line.

From Samuel Kuhn, Hagerstown, comes a current roster of H&F cars on the twenty miles remaining: passenger cars 48, 171 and 172; freight motors 1 (ex.WB&A), 5, 9 (exW&OD), 10 (ex H&LF), 12; work car 7 and line car 15.

The last run on the old Joe Cushing Railroad, one of the first and smallest privately-operated electric freight line, will soon be made on its 500-odd feet of track up in Fitchburg, Mass.

This line connected its private owners with the B&M, opened amid a burlesqued celebration on September 9, 1871, as a steam line. Ceremonies at that time included driving a two-foot *gilded* spike, following which Cushing, the owner, sent out system passes to the presidents of leading railroads throughout the country. In return he received passes on their roads, and was able to have free transportation all over the United States.

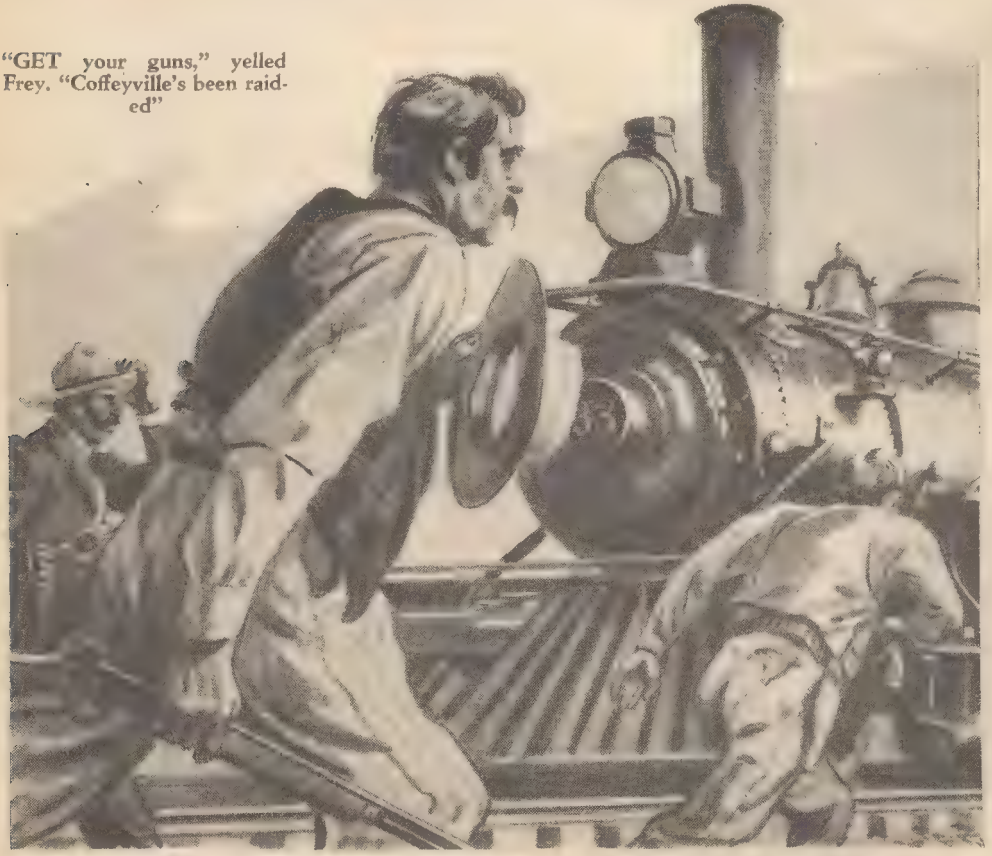
Vigilantes of the High Iron

By JACK R. MAGUIRE

SUDDENLY the old locomotive bell in the tower across from the general offices of the Missouri, Kansas & Texas Railway in Parsons, Kans., began to peal loudly and incessantly. Katy employes, who could sense from the tones the nature of the news thus heralded, knew intuitively that something strange was happening this October 5, 1892. Pushing back their chairs, they poured out of the offices and up the tracks to the Katy station in search of J. J. Frey, the genial general superintendent who always had a hand in anything of civic importance. On this morning, they found Frey riding the footboard of a switching engine, personally directing the making up of a passenger.

"We've got trouble on our hands," he yelled from the moving engine. "Coffeyville was raided awhile ago by the Dalton gang and our telegraph operator there says the town is at the mercy of the bandits. We're going over there. Go home, get your guns and get back here in fifteen minutes!"

The Daltons were no strangers to Katy employes. Everybody in Kansas knew of Bob, Grat, Frank and



"GET your guns," yelled Frey. "Coffeyville's been raided"

Emmett Dalton—the railroad people knew them especially well. Frank was remembered as a respected U. S. Marshal in Parsons' sister-city Coffeyville. Frank had died in the line of duty. Bob and Grat had been U. S. marshals also, but had traded their badges for a career of lawlessness second only to that of the James brothers.

Bob and Grat Dalton, their brother Emmett, and two or three others they took into their gang, had already added some bold and bloody chapters to the criminal history of the prairies. Few banks or railway express cars were safe from their banditry. Only a few months before, the gang had used their Colt .45's to persuade the Katy agent at Adair Station to give up his receipts.

This was fresh in the minds of the Katy men as they returned with their guns to join other townspeople at the train. Not forgotten, either, was the fact that about $40,000 in rewards rested on the heads of the Daltons.

Since speed was of first importance to Frey's *Vigilante Special*, he had decided to leave an available coach behind and take only his business car. With space limited, no volunteer was allowed to come aboard with any artillery less powerful than a Colt .45 or a Winchester rifle. The super was prepared to make every shot count. Within minutes, Frey had his men herded into the palatial car and the little high-wheeler headed toward Coffeyville, just thirty-one miles away.

This lightning-like mobilization of an effective fighting team was characteristic of Frey. Noted for his quick thinking in situations ranging from a serious wreck to the job of placating a disgruntled passenger, Frey had risen from humble beginnings to a high position in a few short years. Born in Jeffersonville, Ind., on September 27, 1848, he became a messenger boy on the old Ohio & Mississippi at seventeen. In seven years, he had risen to trainmaster of the Missouri Pacific at Jefferson City, Mo.; and in 1874 he became superintendent of the Sedalia Division of the MK&T.

Within a decade, Frey had moved to St. Louis as assistant general manager of the St. Louis, Iron Mountain & Southern. Two years later, at thirty-eight, he became the Katy's general manager with offices at Parsons. Employes liked him instinctively, and Frey liked them. The Parsons townspeople had the same feeling, turning to him for leadership. It was natural that they should rally to his command in this mission to rescue their neighbors.

As the train sped along at better than a mile a minute, Frey lectured his men on the plan of attack. According to the report telegraphed by the Coffeyville operator to Parsons before his line was cut, the five-man gang had descended on the town's two banks—one run by C. M. Condon & Company; the other, the First National which stood directly across the street. The robbery had been successful, and now the entire town was being held at bay. Frey hoped to surround the gang, capture or kill them, and recover their loot.

Just thirty-two minutes after pulling out of the Parsons station, the little special roared into Coffeyville —a record run which has never been equaled, and which is sixteen minutes better than the present running-time of the Katy's crack passenger, *The Sooner*.

PILING off the train with guns cocked and ready for triggering, the Parsons vigilantes rushed up the street to the bank to discover that the shooting was over. Instead of finding themselves facing the desperate Daltons, they were faced by a hooting, jeering populace who had the situation thoroughly in hand. Four of the bandits were dead and a fifth lay seriously wounded in the office of Dr. Wells above Slosson's Drug Store.

At least an hour passed before Superintendent Frey and his men were able to piece together a coherent story of what had happened. It seemed the three Dalton brothers together with William Powers and Dick Broadwell, had ridden into town that morning, tied their horses in the alley behind the blacksmith shop, and walked into the two banks. Grat Dalton, Powers and Broadwell stopped at the Condon Bank, while Emmett and Bob had entered the First National. For several minutes, the sleepy little town was unaware that anything was amiss. Then young Charley Grump, a drayman who was driving his team past the bank, glanced through a window and saw the glint of revolvers in the sunlight.

Shouting "The Daltons!" Charley started for Henry Isham's Hardware Store, where he knew there was a small supply of guns. Hearing the shout, Bob Dalton rushed to the door and shot, shattering Grump's hand. After forcing Cashier Thomas G. Ayers to scoop $20,000 into a sack, Bob and Emmett herded the

bank officer and several other employes and customers together, forcing them to walk ahead as shields.

Just then, Lucius Baldwin came walking up the alley with a .22 revolver in his hand. Seeing the group of citizens and thinking that they had captured the bandits, the youthful store clerk started toward them at a trot. Once again Bob Dalton's gun belched flame. Baldwin toppled into the dirt mortally wounded.

Across the street at the Condon Bank, Powers, Broadwell and Grat Dalton had found only $1,500 on the counter and ordered Cashier Charles Ball and Vice-President C. T. Carpenter to open the vault. It was then 9:57 a.m. Although the vault was open, Ball told the bandits that it was equipped with a time clock and wouldn't open until ten o'clock.

Superintendent J. J. Frey

"All right, we'll wait!" Grat said goodnaturedly.

This decision cost Grat and his gang their lives. For in the three intervening minutes, a number of citizens were able to mobilize at Isham's Hardware Store. Seconds before the three minutes were up, shots began pouring into the Condon Bank.

"You'd better lie down on the floor," one of the outlaws told the customers. "Some of your friends might hit you."

As the gun-fire increased in rapidity and directness, the bandits decided not to wait for the time clock to open the vault. Electing to make a run for it, they dashed out of the door and across to the alley. Meanwhile, Bob and Emmett had left Baldwin dying, and had inched their way up the alley toward the place where their horses were tied.

At the intersection of the alley and the street, one of the bandits turned and fired point blank at the bank entrance, killing George W. Cubine. As they reached the middle of the crossing, Bob Dalton fired in the same direction and another bystander, Charles J. Brown died. Before the shooting finally ended, Marshal C. T. Connelly was also dead, and nearly a dozen others were nursing wounds.

The man who saved Frey and his vigilantes from Parsons some ammunition was John J. Kloehr. He became Coffeyville's hero that day. Establishing himself behind a high board fence near where the gang's horses were tied, he aimed his Winchester through a crack with accurate and deadly results. Only Emmett survived the murderous barrage: he got a rifle hole in his arm and a load of buckshot in his backside. Recovering, five months later he hobbled on crutches into the Kansas State Prison at Lansing, to begin a life sentence for murder.

Their chance at glory snatched from them by Kloehr's marksmanship, the Katy clerks from Parsons allowed General Superintendent Frey to herd them back in the train for their return home. But while their roles in the Dalton incident were so minor that history has all but forgotten them, the story of the "too-late special train" was destined to live at least until Frey's death.

Less than a year after the incident, Frey became general manager of the Santa Fe System. He resigned in 1899 and moved to Albuquerque, N. M., because of his wife's health. Soon afterward he became president of the Denver & Cripple Creek Railroad. When he died July 14, 1903, he was at work on his newest and biggest idea—the building of a railroad through Alaska to the Bering Straits.

The last chapter of the Dalton story was not to be written for another thirty-four years, until Emmett's death. Pardoned after serving little more than fourteen years, he became a real estate man and contractor in Kansas and Oklahoma. He spent much of his time doing prison reform work and in religious activities until his death in Los Angeles in 1937. Even today, however, around Parsons and Coffeyville, the railroadmen still tell and retell the story of Frey's vigilantes, of the special train that history has forgotten because it arrived too late.

TWO RAILPOEMS

Graveyard Fantasy

A peaceful hush supplants the rush
Of orders, trains and clearances.
With leaded drop the graveyard op
Dismisses interferences.
No East or West . . . the sounders rest . . .
The hermit heaves his brogans high;
Horizons spread within his head
As vague abstractions amble by.

The world's his own; he sits alone
And leaves his sphere of wires and brass.
There are no bounds to mental rounds
And anything can come to pass.
He tries his hand with Custer's band
And rides with Cody, scouts with Boone,
Sees Gypsies camp beside his lamp
And weirdly dance to fiddled tune.

It's really so. (We ought to know).
How many times we've rambled thus
On errant flights through silent nights
Until the rails had need of us.
When daylight breaks we pull our stakes,
Remove our tents from wild terrains,
Desert our spree of fantasy,
Return to semaphore and trains.

Late Call

I've got my eyes on rails and ties . . .
My itching feet are heading west;
A vagrant strolls by singing poles
And "jungles" where the "gentry" rest
The muses smile . . . perhaps a mile
Will satisfy this urge of mine,
But I can't stall when nomads call
And Indian Summer rides the line.

I ramble on; my set is gone . . .
A new horizon marks the place
Where vision fails and silent rails
Are nebulous in dancing space.
There might be bliss that equals this—
Some inspiration just as fine,
But give me trails of friendly rails
When Indian Summer rides the line.

Perhaps it's just because this rust
That welcomed me to many bays
Is now the track that guides me back
To all those youthful yesterdays.
But this I know: in twilight glow
When I have Morsed my final sine,
There's going to be a "call" for me
When Indian Summer rides the line.

By Charles D. Dulin

Not in the Wheel Report

By JOSEPH EASLEY

"I KNOW! But we were making such good time I didn't wanna stop. . . ."

The Callboard

We Revive an Old Feature With Reader Wickersham's Shots of C&O's Mixed Train to Balcony Falls

THE Reverend George W. Wickersham is rector of All Saints' Church in Norristown, Pa. He is also, and not just incidentally, one of the staunchest rail fans we know. In fact, the only admirer of rods and rails who can be said to exceed him in devotion is his son, George. Young Georgie celebrated his sixth birthday last July 9th exactly the way he did the year before, aboard the Reading's *Crusader* on a special invitation from the Reading officers. (On the Spot, Nov., '46). George accompanies his father on all rail trips, and on more than one occasion has been the subject of an extra good train shot, such as the one on page 108.

Balcony Falls, the Wickershams tell us, is the destination of C&O's daily mixed from Lexington, Va. "Boys," the Lexington station agent said when they bought their tickets, "I've given you a whole private car!" They waited more than two hours for a check on that. But at 11:30 the exhaust of the daily was heard challenging the grade.

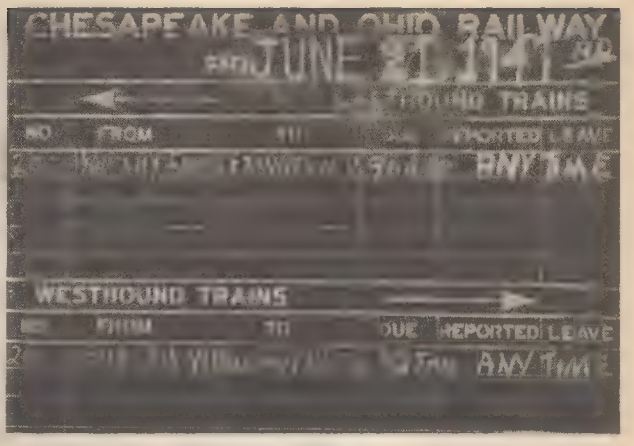
"Here she comes!" shouted Georgie.

But it was not an engine headlight which swung Number 200 into view around the bend. "The whole train," writes Mr. Wickersham, "gets pulled into the wye at East Lexington, and is then pushed up to the terminal in reverse. Today, combination car 418 arrives first, then caboose 91018, followed by a boxcar of merchandise and a tank car full of asphalt. Doing the work on the end is sturdy little Consolidation 1016. We read the builder's plate as the panting engine clanks past: "American Locomotive Company, Richmond Works, June, 1909.'

"Georgie has his eyes on the combination car. 'Look at those six-wheel trucks

and that shiny new coat of bright red paint!' But she's as dated as the 'Nineties themselves: transomed windows, wooden construction, Victorian lines . . .

"A half hour has elapsed and Engineer Cline has set out his train and made up a new one, Number 201, consisting of two gondolas of heavy logs, one partly loaded boxcar and an empty asphalt tank. 'All aboard!' That's what Conductor Peters ought to say, but he doesn't, so Georgie says it instead. We're off for the 21-mile ride to Balcony Falls. But first a stop at East Lexington to weigh those lumber gons and pick up a couple of hopper cars of crushed stone. And say . . .! Take a look at that hulk reposing on the other



TRAIN BOARD at East Lexington baldly announces the scheduled 9:20 as leaving "any Time"

NUMBER 201, *below,* with Engine 1058 on the headend. But that's the same "private car" the Wickersham father-son team rode a few days earlier

GEORGIE hops a caboose in right conductorly fashion considering the height of those steps

BELOW: Bridge to nowhere at the end of the wye at East Lexington. Once, the line north to Staunton extended beyond the buffer

side of the river. No less a person than Robert E. Lee used to ride on that old mule-drawn packet boat, Lexington's 16-hour connection with Lynchburg before the rails came in 1883. Yes, and the brick East Lexington station was the boat house.

"The right-of-way follows the Maury River, the north branch of the James, on down to Balcony Falls. Eight miles of scenic beauty. Georgie and I open our sandwich lunch, eyes on the palisades. Mr. Peters interrupts to punch our tickets and introduce his train crew, Wyett O. Flippo and J. Gordon Irvan. In the meantime, our train has paused beside the big Columbia Paper Mill at Buena Vista. The pick-ups necessitate some fancy moves. Georgie's at the window with a cup of water in his hand when they throw one at us. Wham! The cup goes flying and Georgie squeals with glee. 'Was a wrack!' the delighted boy exclaims.

"But presently he sobers, staring over at the big Buena Vista station on the N&W's Shenandoah Division. There's one of the low-slung Mallets of that line northbound with a string of local freights. And we're leaving town with a drag of fourteen cars instead of five. It's no trouble to 1016 as she picks up speed to climb right up onto the N&W tracks. The C&O used to have its own rails here but around 1905 the two lines joined forces from Lock Laird down to Glasgow, nine miles to the south. Hogger Cline really lets her out on the down-grade into Buffalo Forge and winding with the river into Glasgow where we part company with the N&W.

"'Highball!' But not for long. The 1016 hardly has a chance to move her thirty-two cars before she's in the classification yards at Balcony Falls.

"A loud throaty wail for the board announces the approach from our left of a big Mike coming up the James with 160 empty hoppers. Yes, Georgie, this is it: the C&O's main freight line. All our cars will be picked up here to go east or west. As for coal trains—well, you already see what I mean! And the grade is just enough for one Mike or maybe one of those new Berkshires to drag them down to tidewater full, and bring the same number back empty. Passenger service? Here comes the doodlebug now. She's out of Richmond for Clifton Forge. That means it's about four o'clock. They'll be breaking up our train for a while before they pull the coach up to the station, so let's walk on up through the yards. . . .

"Well, goodbye, Mr. Peters. Thanks for all your kindness. We were? Well, what d'you know? Your first through passengers in two months!"

* * *

STEAM SPECIALTIES in miniature are fairly unusual in themselves; but when two locomotive engineers manufacture 15-inch gage railway equipment, then that is news. Norman K. Sandley and his father, Elmer M. Sandley list themselves respectively as president and chief mechanical engineer of th Sandley Light Railway Equipment Works, a plant that has been in operation in Janesville, Wisc., since 1910. "We read your magazine regularly as we are both engineers off the C&NW," says Norman in a recent letter. He goes on to explain how the Sandley Works is establishing its miniature railways—complete with track, steam or Diesel locomotive, passenger and freight cars, automatic couplers, signals, rails, frogs, switches and necessary material—on a farmer-merchant cooperative basis to serve off-the-main-line communities.

NEAT Hudson-type is this specimen of the Sandley 15-inch gage engine. English-style coach bears the name of its home-town; each of the two private compartments will seat four passengers

From Rex Photos, Janesville, Wisconsin

HE went out head first, just like a big bullfrog into a puddle

To the Rescue

IN THE old melodrama the hero, sooner or later, stepped down to the footlights and in ringing tones bellowed, "To the rescue!" All this happened of course at a point when the virtue or the life—or both—of the heroine was at the complete mercy of the black-jowled villain. The hero, heroically breeched and booted, arrived in the nick of time to foil the dastardly monster, and he and the blonde angel lived happily ever after.

Such a performance today seems farcical; but I recall a rescue that wound up in even worse shape than the above. It took place during the "Year of the Big Snow" as we always remembered it afterward. That was 1936, and the scene was a logging pike on Hayden Mountain in southern Oregon. Our cast included three locomotives, a snow-plow, a camp boss, an assortment of engine- and trainmen, plus a chorus of gandy dancers. The villain, of course, was the blizzard.

The plot began to thicken when the trainmaster got word that the mainline hog was in the ditch some eighteen miles east. It had been snowing for about two weeks without a letup, and it was a bitter fight to keep the roads in any kind of travelling order. There was a good five feet of the white stuff on the level, and the scouring wind was constantly dumping the cuts full.

Gandy dancers had been putting in shifts of from ten to twenty hours a day, and that day was no exception. The crew

I was with had been out since 6:30 that morning and we had a long twelve hours under our belts when the word came in. They hauled us into camp to eat while the TM was getting a couple of engines and the plow lined up. The wind was rising then; and the thermometer was trying to huddle all its mercury in the bulb to keep warm.

By W. V. ATHANAS

This outfit--Weyerhaeuser Timber Company—took a great deal of pride in the fact that when other outfits were tied up by bad weather, the logs were still rolling down the Weyerhaeuser pike. So, fair weather or foul, we just grabbed her by the face and bulled her through.

As I said, Trainmaster Doc Zeitler had two Baldwin hods tender to tender, the lead locomotive nosing into the plow. The rear Baldwin had a flanger mounted on her pilot which they figured would help in the event we got stuck and had to back up. The plow was a home-built job, short and stubby and loaded with about sixty tons of scrap iron. She had retractable wings operated by air cylinders, and the flanger underneath was moved up and down by another cylinder.

When we set out, the camp boss went along to supervise the rescue of the ditched hog, operating one of the wings. A conductor worked the other side. The gandy dancers dug out and cleaned the three switches in turn as the outfit went around the wye. About 8:30 p.m., we pulled out of the yard and in the glare of the headlight saw the snow flying grandly away from the wings.

The power behind us barked briskly. The wind screamed through the timber, carrying more snow than it knew what to do with, and I stoked up the stove in the plow. There were only about six of us in the plow proper—as I said she was short and stubby, and both the cabs of the engines were crammed with men. The whole front of the cab was glassed in, and I stepped up close to the windows to get a good look at the storm.

The whole area lighted by the headlight was a dizzying whirlpool of almost solid snow. The stuff wasn't falling in normal fashion, but was whipped along almost horizontally by the wind. Swinging around a gentle curve, we came upon one of the most breathtaking sights I've ever seen. We were moving into a cut too deep for the snow to be thrown out by the wings; as a result we were pushing the whole thing ahead of us.

SNOW was mounting up over the high nose of the plow, packed up against the cab until even the windows were covered as high as my chest. Far ahead as I could see—some two hundred fifty or three hundred feet—was a white sea. It boiled and churned, but had nowhere to move but ahead. The plow with wings extended filled the cut almost bank to bank. While the cab windows were probably a good fourteen feet above the rail, there was a good ten feet of snow in that cut. I have ridden hundreds of weary miles in a plow, but never seen anything like it.

There was no jolting or bumping. We just glided along like Granpa's one-horse cutter, smooth and easy. We broke out of the cut onto a fill and the snow began to tumble off the sides in chunks as big as a house. The *wham wham wham* of the exhausts picked up a notch and all of a sudden I had the sensation of riding an airplane.

We went into a zoom that lasted hardly long enough to be interesting, banked hard left and then nose-dived. That dive lasted long enough. I saw the camp boss pop up to attention, making a grab to slap open the emergency air reduction valve. Then he went out through that side window head first, just like a big bullfrog into a puddle. It was beautifully done. He didn't even touch the sill with his feet.

Through the front windows I saw the snow-covered earth go by sideways in a grand pinwheeling motion, and then the light went out. I couldn't see a thing. The plow stopped suddenly about that time and, being against the front bulkhead, I stopped too. But the other four or five birds behind me in the cab kept going.

They were in motion, coming right straight ahead, until I stopped them. It was unintentional. One of them halted when my shoulder blades came between his feet and the bulkhead; the rest just piled up on top of us as though we were a snubber at end of steel. I do believe that if that bulkhead and myself hadn't been there, they would have gone another rail length.

After the crash, I just huddled down there for all I was worth, waiting for a locomotive to come on through the cab to join us. After two or three years had ticked by, I decided that if the engine was coming she would have been there by now, and crawled out from under. It was a depressing sight, after the confusion died down.

The plow had turned at right angles to the track and headed over the bank. Luckily the drawhead had broken, and the fill was high enough for the plow to clear the rail. The engines had both kept their feet and charged right on past. The lead hog was into the drifts as deep as her headlight and as far back as her rear

drivers. The nose of the second engine, which was the rearmost part of the outfit, was past the plow. The lead locomotive had gone three times her own length beyond us into the drifts.

It was fairly obvious that we would go no farther that night. We counted noses and found nobody hurt. One of the boys I had snubbed in the plow had banged his nose against a brace and I had a scratch on my leg; but we had all bundled up like Eskimos and were pretty well protected against bumps.

IT TOOK us an hour of hard digging before we got the head hog unstuck. Meanwhile the cut behind us was drifting up again. The flanger on the rear hog, which I mentioned before, had no piston to hold it down, and it was too light to buck heavy snow. Between the snow that was falling and the pileup that the wind was bringing in, we already had nearly three feet of the stuff in that cut.

They butted at it a few times with both the hogs, but she just wouldn't buck. We started shoveling. We dug until our backs were breaking. We'd shovel a few feet, then the hogs would hit her, then we'd dig out the hogs. In this way we gained maybe twenty feet at a time.

By midnight we'd made about three-tenths of a mile. I climbed up on the bank and shoveled out a shelf. The boys on the rail heaved snow up to me and I heaved it up over the bank. While cutting my shelf my shovel had run into something solid. I gave it a half-hearted scrape and the headlight shone on it. The yard limit board! A quarter of a mile to the nearest switch in the yard. I covered it up again.

That cut was the worst of it. The locomotive could buck the drifts on the fills and level grade, but we had to dig them out more times than I remember before we were through. It was about 3:30 a.m. before we pulled up in front of the trainmaster's shack in the yard. He'd given up hours before and hiked back to camp. I stood behind the camp boss while he rang the TM from the shack phone.

"Well, Doc," he said, "we're back."

"Good," came Doc's voice. "Have any trouble getting the Four on her feet?"

I'll bet the boss sagged a good six inches. He was so damned glad to be back and in the clear that he and the rest of us had almost forgotten what we had set out to do. That blasted mainline hog was still in the ditch at the Junction—eighteen miles away!

We never did get around to rescuing the Four Spot. It took us all the next day to dig out our plow. Then they took two Ohio cranes out to pick it up, and blamed near foundered them trying to budge that chunk of tonnage. As I said, it was loaded down with about sixty tons of scrap iron, and they had built the decks right over it. The scrap was made of old boiler grates and the like, cut into chunks of from thirty to sixty pounds.

Water and snow, lying on that deck for weeks, had run through the cracks and welded the whole thing into one big chunk of iron and ice. Each piece had to be chopped loose with a pick and lifted out by hand. As I remember it, they had to go and beg a plow from the Great Northern to come in from the mill end and rescue the Four Spot. I clearly recall that it took three big logging tractors and both cranes to get that fool plow out of there, and then it had to be done in chunks.

So every once in a while after that, when we were sitting around a sizzling stove and listening to the wind whip at the bunkhouse, somebody would come up with a crack.

"This 'ud be a helluva good night to go and rescue the Four Spot."

Those of us that had been there would do our level best to kill him.

Photo by Wesley Krambeck, Herington, Kans.

EIGHT-WHEELED SWITCHER Number 60 works the yard at Kansas City, Mo. Although not an oil burner, she is equipped with stack light to indicate density of exhaust

Photo by Hugo Lackman, Jr., 312 17th St., Galveston, Tex.

LIMA-BUILT MIKADO 876 on the outboard engine track at Galveston. Note the long side-ladder to running board

Photo by Tex K. Herring, Box 725, Oklahoma City, Okla.

MISSOURI-KANSAS-TEXAS emblem, designed by Rand, McNally & Co. in 1889, adorns tenders of the road's passenger locomotives. The 359 is used between Oklahoma City and Parsons, Kans.

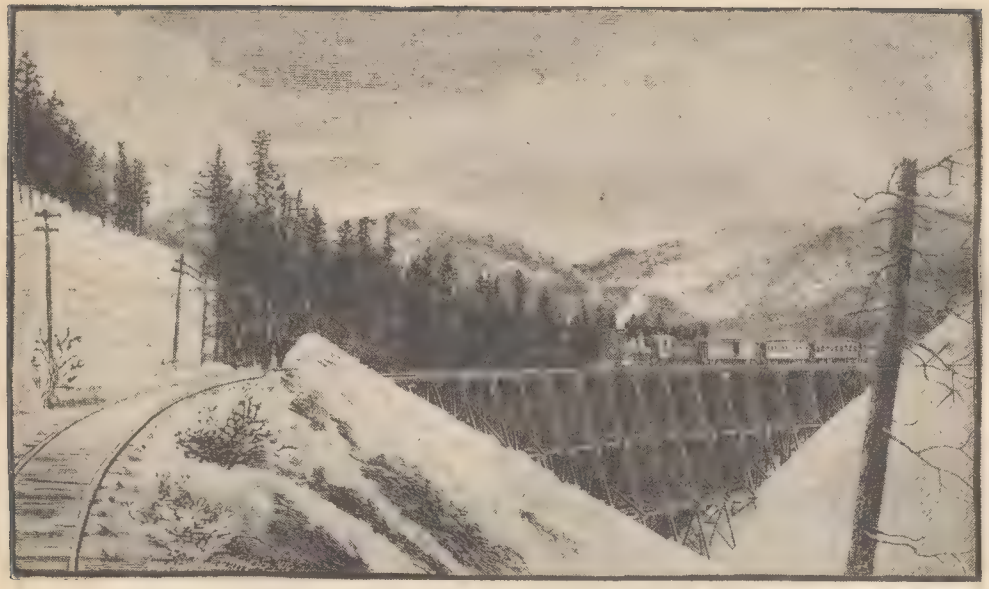
Locomotives of the Missouri-Kansas-Texas

Steam Locomotives

Numbers	Cylinders	Drivers	Pressure	Engine Weight	Tractive Effort	Builder and Date
			0-6-0 (Switcher) Type			
5, 10, 13	19 x 26	50	180	144,700	28,700	Baldwin, 1911
14–36	21 x 26	57	180	159,200 161,600	30,750	Alco, 1904–10; Baldwin, 1905
			0-8-0 (Switcher) Type			
39–68	25 x 28	51	185	212,300	53,950	Lima, 1920; Alco, 1923
70–79	26 x 28	51	200	244,000	63,100	Lima, 1925
			2-6-0 (Mogul) Type			
476–596	20 x 28	63	210	170,000	31,750	Alco, 1902, 03, 06; Baldwin, 1902, 03, 06
			2-8-0 (Consolidation) Type			
608	21 x 26	56	180	172,200	31,300	Baldwin, 1900
622–644	24 x 30	61	195	223,000	46,950	Alco, 1910
656–666	21 x 26	56	180	167,700	31,300	Baldwin, 1894
669–670	22 x 28	56	200	192,000	41,100	Baldwin, 1902
			2-8-2 (Mikado) Type			
702–770	26½ x 30	61	195	287,500	57,250	Alco, 1913, 14
836–920	28 x 30	61	195	315,000 324,000	63,900	Alco, 1918; Lima, 1920, 23
			4-4-0 (American) Type			
306–315	18 x 24	69	180	123,000	17,200	M K T, 1925
			4-6-2 (Pacific) Type			
350–356	24 x 28	73	200	242,000	37,550	Alco, 1911
358 & 365	22 x 28	73	210	242,000	33,150	Alco, 1910
359–364, 366	24 x 28	73	200	242,000	37,550	Alco, 1910
367–376	24 x 28	73	200	254,000	37,550	Alco, 1912
377–412	25 x 28	73	210	272,000	42,750	Alco, 1915, 16, 17; Lima, 1920, 23

Diesel Locomotives

Numbers	Drivers	Horsepower	Engine Weight	Tractive Effort	Builder and Date
			B + B (Switcher) Type		
1000	40	1000	240,000	72,591	Baldwin, 1946, 47
1001	40	1000	240,000	72,549	Baldwin, 1946, 47
1002	40	1000	240,000	73,887	Baldwin, 1946, 47
1003	40	1000	240,000	73,229	Baldwin, 1946, 47
1004	40	1000	240,000	73,719	Baldwin, 1946, 47
1005	40	1000	240,000	73,110	Baldwin, 1946, 47
1006	40	1000	240,000	73,563	Baldwin, 1946, 47
1007	40	1000	240,000	73,413	Baldwin, 1946, 47
1008	40	1000	240,000	73,833	Baldwin, 1946, 47
1009	40	1000	240,000	73,533	Baldwin, 1946, 47
1010	40	1000	240,000	73,365	Baldwin, 1946, 47
1026	40	1000	248,000	61,080	EMD, 1947
1027	40	1000	248,000	60,950	EMD, 1947
1028	40	1000	248,000	61,020	EMD, 1947
1029	40	1000	248,000	61,290	EMD, 1947
1030	40	1000	248,000	61,190	EMD, 1947
			B + B (Freight) Type		
201	40	4500	690,000	169,420	EMD ,1947
202	40	4500	690,000	169,620	EMD, 1947
203	40	4500	690,000	169,850	EMD, 1947
204	40	4500	690,000	169,750	EMD, 1947
205	40	4500	690,000	169,760	EMD, 1947
206	40	4500	690,000	169,340	EMD, 1947
207	40	4500	690,000	169,310	EMD, 1947
			B + B Passenger) Type		
101	36	4000	630,000	105,340	EMD, 1947



New Railbooks

The Story of American Railroads, by Stewart H. Holbrook, 468 pages, illustrated with 100 photos and old prints, Crown Publishers, New York, $4.50.

SO PLENTIFUL are railbooks that when a new one comes out, the first question to arise is: Does it duplicate any existing volume? And the next: Is it worth reading? Let us see how *The Story of American Railroads,* Holbrook's twelfth published book, meets the tests.

His subject matter is panoramic. He covers the history, drama, personalities, and lore of railroading in the United States with the cross-sectional selectivity of a Gallup poll. No other modern, adult book even attempts to do that. If *The American Railway,* written by a dozen authors fifty years ago, were brought up to date and retold in a frank, colorful, vigorous style, eliminating the company viewpoints, stressing human appeal, and adding much fresh material, you would have a rough approximation of *The Story of American Railroads.*

Like a veteran mural painter, Holbrook utilizes fully the 468 pages at his disposal. The book is a work of art. Every detail adds to its effectiveness. There are thirty-nine chapters, ranging from "Primeval Railroading" to "The Second Century," and a satisfying gallery of illustrations. There are histories of roads big and small. There are tales of the fast mail, the air-brake, link and pin days, Railway Express, sleeping cars, spotters, bandits, wrecks, narrow-gages, hoboes, news butchers, ballads, and the like.

If the style were less original, less dramatic, we would say that 468 pages were too many. As it is, we find the entire book easy to read, and packed with indexed information for future reference. The facts are well authenticated; Holbrook has a passion for accuracy. Unlike most railbooks, this one shows creative imagination. A fair sample is the author's boyhood memories of the Grand Trunk. He used to watch the trains "roll on and on over the timbered hills, over the blueberry swamps, over the stark white fields. . . . They went, we were certain, to a magic and wholly wondrous land for which we had no name . . . just beyond Oz, where the Round River flows through a notch in the Big Rock Candy Mountains."—F. H. H.

HISTORY is made on the shortlines, too. The narrow-gage Pacific Coast Ry., Port San Luis to Los Alamos, Calif., was chartered in 1882 to provide 75 miles of coastal transportation

Ruler of the Reading: The Life of Franklin B. Gowen, by Dr. Marvin W. Schlegel, with foreword by R. W. Brown, now president of the Reading Co.; 308 pages, illustrated with portrait, map, and chart; Archives Publishing Co. of Pennsylvania, 410 Dauphin Bldg., Harrisburg, Pa.; $4.

ONE of the most dramatic figures in railroad management history, Franklin B. Gowen, flashed across the industrial sky like a blazing meteor, spending in turmoil his career as big chief of the Philadelphia & Reading Railroad. His biography by Dr. Schlegel, Pennsylvania's assistant state historian, is likewise a biography of the P&R in its most expansive period.

The volume is a lusty, full-bodied chapter from the annals of the 1870s and '80s, an accurate, illuminating record of methods and personalities that are gone never to return. The author combines careful research with a vivid, easy-to-read style. Here in frank detail we read of rate wars, price-fixing, monopolies, strike-breaking, the first cartel, anti-labor espionage, favoritism in the allotment of freight cars, terrorism in the coal fields, union-busting, and other practices not tolerated under today's Federal supervision but which characterized American business three-quarters of a century ago.

"If Franklin B. Gowen, onetime president of the Reading, had been living in our time," writes R. W. Brown, now president of that system, in a foreword to the book, "his activities would undoubtedly have resulted in having been brought before the Federal Trade Commission, the Interstate Commerce Commission, the National Labor Relations Board, and half a dozen other alphabetical agencies. . . . In his day he (Gowen) was pretty much of a dictator and he ran his business in what many people would consider a very high-handed manner."

However, Schlegel points out, "Gowen was far ahead of his time in his consideration of the rights of his employes." He sponsored the first written labor contract in America's mining industry and the first important use of arbitration to settle a wage dispute. He set up the first non-contributing system of workmen's compensation in the anthracite industry, if not in the United States. He was one of the first rail executives to advocate the ICC, and to urge abolition of the free-pass evil, and to form an industry-wide agreement to stabilize prices at a low level so as to keep the consumption of goods and services at a high level.

We read the not-commonly-known facts behind the Reading's proud boast, "Largest Anthracite Carrier." We see Gowen, experienced as a coal producer and lawyer, heading the P&R road and founding the P&R Coal & Iron Co., with 70,000 acres of coal lands, more than twice as much as was owned by any other anthracite concern. We see the interplay between the P&R road and its Coal & Iron Co., to the detriment of independent coal shippers. We see a progressive P&R move to cut coal prices by selling direct to consumers.

Dr. Schlegel explains how years of economic warfare strained the Reading's shaky financial structure to the point of collapse and, in fact, led to two reorganizations. In the period from 1871 to '74 Gowen borrowed at the rate of sixteen millions a year, building the Coal & Iron Co. into "the largest marketing organization the world had ever seen." We are told that he used the Coal & Iron Co. to keep the railroad's huge floating debt out of its annual report by transferring this debt to the Coal & Iron books, later shifting it "back to the railroad when the Coal & Iron accounts were closed for the year."

Schlegel also covers the South Penn fiasco and the sensational methods Gowen used, with the aid of Pinkerton detectives, to crush the Molly Maguires, a secret organization in the Pennsylvania coal regions. According to Schlegel, this group

was more a victim than a creator of terrorism, and several Mollies were hanged unjustly.

Gowen, handsome and a magnetic orator, swayed packed audiences. Even his farewell to life was dramatic. Depressed by losing his position as "Ruler of the Reading" and unwilling to play a minor role, Gowen rang down the curtain on his spectacular career with a new pearl-handled revolver, throwing the P&R offices into a panic.

"For twenty stormy years," Schlegel writes, ". . . in the eastern United States and in England he (Gowen) was at least as well known as Carnegie, Rockefeller, Vanderbilt, or Gould. Yet, a half-century after his death, his was the only name of which could not be identified by an average student of American history."—F. H. H.

Mr. Thurtle's Trolley, by Theodore Pratt, Duell, Sloan & Pierce, Inc., 270 Madison Ave., New York City. $2.50.

NOT too many years ago the editor of the Kaneka, Kansas, Weekly reported in uneven headlines.

ANDY THURTLE
LEAVES FOR
HELL IN A HACK

Such an amazing statement was not based, as might be supposed, on a wild and drunken editorial humor nor even on a wilder but less spiritous legend flowing among the superstitious, but was a sober, verbatim account of Andy Thurtle's farewell to the town of Kaneka. From which it may be gathered that the Thurtle rage was both explicit and vindictive, and based on a shattered love affair.

What had shattered this particular romance was that natural disturber of peace and happiness, the automobile. But out of the greatest tragedies good sometimes comes. If there had been no automobile and no subsequent departure for hell in a hack, there would have been no Conductor Thurtle and, just possibly, no Mount Vernon Rapid Transit.

At fifty-three, Mr. Thurtle has a severely official aspect, but underneath it he is the same Andy Thurtle, deathlessly at war with the stink buggy. In this battle, he has one companion, Mr. Winch, motorman on the *Betsy,* and two aids. The first of these, an annual week-long binge in New York City is better not discussed; the second is, Faith. Faith—and the yearly vacation—have sustained Mr. Thurtle and Mr. Winch through the slow abandonment of the MVRT to the hated buses; but when, after thirty-two years, *Betsy* herself comes up for sale and there are no takers except a junk dealer—well, Faith had better get practical, that's all.

This is not difficult when the object to be dealt with is a junk man who has the fortunate or unfortunate wisdom to see that the world is mostly filled with junk and that maybe there ought to be less. But when relations with civic officials are the matter under test, then it is manifestly impossible for two sane men to operate either practically or with any confidence at all. The best thing to do, as Mr. Thurtle and Mr. Winch discovered, is not to operate at all; and they didn't, leaving the Mayor and his alderman and both bands flat at the celebration of the *Betsy's* demise.

Her remains were supposed to rest finally at the corner of Mr. Thurtle's and Mr. Winch's house. And that, for a while, seemed to be all that was going to happen. But Andy Thurtle, he who had gone to hell in a hack, got to thinking. The tracks of the Mount Vernon Rapid Transit had never been taken up because the cost would be more than the metal was worth. The problem was, to get the *Betsy* back on those tracks. That this was accomplished by the power of thought is simply incredible; no more so to you than to the town of New Vernon, New York, and the managers of the bus corporation calling itself by the honorable name of the old streetcar company. But even such villainous men as these obviously were can be awed by what they don't understand; and awe can force them to act, even to decent and sensible acts.

However, in the case of Mr. Thurtle

and his companion, the usual thing happened. That is, the bus owners waited so long to perform their virtuous deeds that they were no longer necessary. Mr. Thurtle, now driven completely sane by the loss of his job, his romantic past and his New York carousels, had a better idea than just running the *Betsy* back and forth over MVRT trackage; he meant to take her all the way to California, via Kaneka, and that he did.

Mr. Thurtle's Trolley is what the trade is accustomed to call a juvenile, meaning a tale about good people who get what they want because they want it in the right way. This is no place to describe the westward trip of the *Betsy,* yellow as a pumpkin and wearing her old-fashioned scroll-work like a necklace, nor how a more tolerant Mr. Thurtle rewon his jilted fiancee. "It's a miracle," said an outraged San Franciscan in a final bus-like judgment on Mr. Thurtle, "a miracle you aren't in the nut house!" It is, for a fact. The reader, juvenile or not, will thank Author Pratt for it, as he shares some of the triumph felt by two old rails in their escape from the nut house into a world where all good trolleys run again. —H. H. G.

Bulletin No. 70. The Railway & Locomotive Historical Society, Inc., Baker Library, Harvard Business School, Boston, Mass.; August, 1947. $1, for members; $2, non-members.

THE joint centennials of the Monon and the St. Lawrence & Industrie Village (CP) furnish the theme for two of the lead articles in this issue of the Bulletin. The St. Lawrence & Industrie Village has had some mention in this magazine, the last in connection with the Canadian National feature in our December, 46 issue. The full tale of this 6-mile line, founded by a great grand nephew of explorer Louis Joliet, has all the color of French Canada in the colonizing days. Barthelmy Joliette (when or why the spelling was changed we don't know) not only built a railway but almost singlehanded founded the village which it was to serve.

One of the most interesting things about this little 100-year-old road, now the hoariest section of trackage operated by the giant CPR, is its possession of the *Dorchester* between 1850 and 1864. The *Dorchester* was not only the first locomotive in Canada, but the first to operate on the Canadian National (Champlain & St. Lawrence) and also the first to operate on the CPR.

It is also interesting to compare the St. L&IV's original track structure—6x7-inch pine rails with bevelled upper edges to which 3x½-inch strips of wrought iron were later spiked—with that of the Monon in the same year. Here was forty-five miles of flat iron bars, twenty-two pounds to the yard, laid on a framework of wood without ballasting and with the spikes eighteen inches apart. That locomotives could snake up and down the numerous hand-graded cuts and fills of southern Indiana, hauling several loaded cars over such trackage appears today quite improbable. Yet it was done—as witness the story about a freight engineer rolling down hill toward the town of Salem. The fireman felt the speed was a little excessive and tried to caution the eagle eye by pointing ahead and shouting: "Salem down there!" The engineer's only response was an increased speed until after the fireman's third warning; when the engineer shouted back, ". . . I'm sailin' 'em as fast as they'll roll!"

In addition to the two centennial features and a fine opening article on Ross Winans, there are shorter sketches of the Canada Southern, the Buffalo & Susquehanna and the Milford, Matamoras & New York. Each is accompanied by maps, photographs and engine rosters, and the story of each line is a chapter in the rail drama of this continent.—H. H. G.

Railroad Magazine Index for 1947

ONCE again we offer a detailed, cross-reference index of fact material used in *Railroad Magazine*. As in the past the 1947 listing carries the item, followed by the month and page. Asterisks (*) indicate pictures. The list is issued mainly to serve readers who save their old copies and want to check back on elusive bits of information. We've also considered the need of railroaders, students, historians, journalists, researchers.

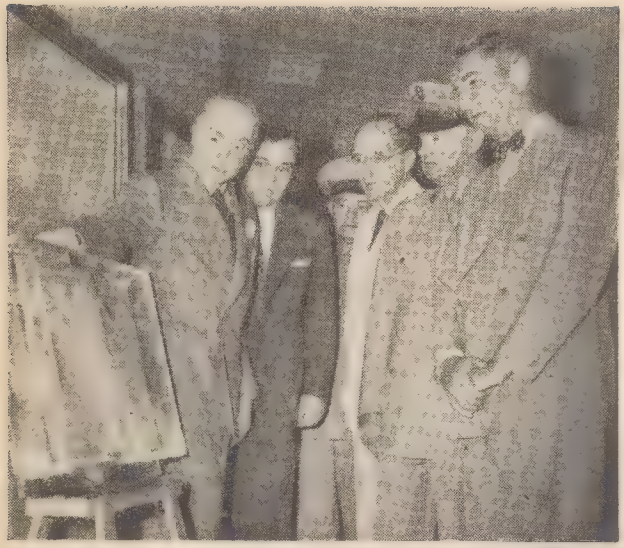
ABANDONMENTS: 1946 electric, listing, Mar. 94; 1946 steam, listing, May 67
ABERDEEN & ROCKFISH: July 66
AKRON TRANSPORTATION: July 113
ALASKA JUNK CO.: June 129*
ALASKA RAILROAD: Jan. 57; Apr. 131*
ALLEN, HORATIO: Apr. 10*
ALONG THE IRON PIKE: Jan. 93; Feb. 90; Mar. 64; Apr. 76; May 44; June 42; July 94; Aug. 54; Sept. 96; Oct. 46; Nov. 38; Dec. 34
ALTON RAILROAD: Oct. 122*
ALTOONA & LOGAN VALLEY: Dec. 100*, 101
AMADOR CENTRAL: Jan. 51*
AMMUNITION TRAINS: *Navy Railroad*, June 116*, 123*
ANN ARBOR RAILROAD: June 44*
ARCADE & ATTICA RAILROAD: Aug. 135*
ARKANSAS HARBOR TERMINAL: Oct. 132
AROOSTOOK VALLEY: Feb. 108
ARTICULATED ENGINES: Apr. 121*; May 123*; July 116*, 118*, 120*; Sept. 95*; Oct. 36*
ATLANTA & ST. ANDREWS BAY: Feb. 124; Oct. 130*
ATLANTIC CITY RAILROAD: May 133
ATLANTIC CITY & SHORE: Jan. 87; June 104
ATLANTIC COAST LINE: Jan. 52; Roster, Mar. 119* thru 123*: Oct. 66*

BALTIMORE & OHIO: Mar. 17*; Apr. 131*; May 69*, 81*; *Highballing the Cincinnatian*, June 8* thru 22*, 87*, 89*; *The Cincinnatian* (model plan), June 110 thru 115; July 131; Sept. 73*; Dec. 83*
BALTIMORE TRANSIT: Mar. 99
BANGOR & AROOSTOOK: Feb. 136*; June 84*; Sept. 141*
BARLOW, LESTER: *The Barlow Plan* (Rutland), Jan. 10, 12*

Courtesy Norfolk & Western
ONLY railroad in the country continuing to build Mallet compounds, N&W is readying another group of these heavy-duty coal haulers

BARRE & CHELSEA: June 138; Dec. 134
BELFAST & MOOSEHEAD LAKE: July 142*
BIG FOUR: Jan. 128; July 56*
BILLINGS, FREDERICK: May 20*
BIRMINGHAM ELECTRIC: Nov. 113*
BOILERS: *Welded Boilers,* May 66*; *Flue Removal,* May 63*; *Sludge Removal,* June 80; *Trapped in a Boiler,* Dec. 58; *Experiences Way Back,* Dec. 121
BOMBAY, BARODA & CENTRAL INDIAN: *Fantrip in C.B.I.,* Oct. 84*, 86*
BOOKS: *Narrow-Gage Railroads of Colorado,* Jan. 139; *Trolley Lines in the Williams Valley, North Hudson County Railway, Portland-Lewiston Railroad, Bamberger Railroad,* Feb. 107; *Trains, Tracks and Travel, The Pioneer Period of European Railroads, Camel Carrier, The Kentucky Engineer, Oliphant's Earning Power of Railroads,* Mar. 75; *Cornwall Railroad, Shore Line Electric,* May 98; *Above the Clamor,* July 127; *Freight Train Handling Supreme, Improving London's Transport, Trains Album of Great Northern Railway,* Sept. 74; *Men of Erie, Mixed Train Daily, The Santa Fe Trail,* Dec 112
BOOMERS: *Boomer's Beginning,* Jan. 88; *Tenderfoot Boomer,* May 100; *Nostalgia,* Nov. 96
BOSTON & ALBANY: Jan. 56; Aug. 61
BOSTON ELEVATED: Dec. 100*
BOSTON & LOWELL: Oct. 127*
BOSTON, LOWELL & NASHUA: Aug. 64*
BOSTON, REVERE BEACH & LYNN: Apr. 128*, 135; May 137; Dec. 128, 129*
BOWDOIN RAILWAY & TRANSPORTATION: *Ten-Wheel Railroad,* Sept. 61, 62*
BOXCARS: New PRR, Jan. 54, prices, Jan. 134; Mar. 134; Apr. 52*; *Clear Block-Gray Hair,* July 47; Nov. 84*; symbols on, Dec. 79
BRAKEMEN: *The Silent Land,* Dec. 86
BRAKES: Dynamic, Apr. 74
BRANFORD ELECTRIC RAILWAY: July 109
BRIDGES: Covered, Mar. 104, 108; July 67*; Drawbridges, Aug. 130; Sept. 39*, 134*; Oct. 28*, 107*, 122*; Nov. 18*; Lachine Canal, Dec. 21*; Victoria Jubilee, Dec. 22*, International, Dec. 30*
BRITISH COLUMBIA ELECTRIC: Mar. 97*; July 128*; Sept. 108, 109*
BURLINGTON & MISSOURI: *The Alphabet Railroad,* Oct. 8

CABOOSES: BRT Birthplace Caboose, Apr. 23*; May 56*; July 56*, 58*, 59*; Aug. 121*; Sept. 24*
CAMELBACK ENGINES: Jan. 128; Dec. 80
CANADIAN NATIONAL: Feb. 63; Mar. 85*; Apr. 91*; Aug. 61, 62*, 88*; *Canada Rolls Its Own,* Nov. 12* thru 37*, Roster, 124*, thru 130*; *Canada Rolls Its Own (II),* Dec. 12* thru 33*, *Running Blind,* Dec. 66, Roster (Part 2), Dec. 114*, 116*
CANADIAN PACIFIC: July 65*; *International Complications,* Aug. 77 thru 88*; Roster, Sept. 122*, 124*, 126*; Nov. 141
CANALS: Used for railroads, Jan. 86
CAPE BRETON TRAMWAY: Oct. 102
CAPITAL TRANSIT: July 113; Oct. 100
CASEY JONES: *Memorial to Casey Jones,* Nov. 116*, 117*
CENTRAL CALIFORNIA TRACTION: Apr. 75; July 113
CENTRAL OF GEORGIA: Sept. 63*; *Man O'War,* Nov. 66* thru 69*; Dec. 82*
CENTRAL PACIFIC: *Port Chaw,* Oct. 104* thru 111*
CENTRAL VERMONT: Aug. cover; *Border Line,* Aug. 8* thru 33*; *Long Flagstop,* Aug. 89* thru 92*, Roster, Aug. 117*, 118*, 119*
CHAUTAUQUA TRACTION: Oct. 103*
CHESAPEAKE & OHIO: Mar. 92*; Apr. 49*, 53; May 74*, 76*; July 120*; Aug. 126*; Sept. 68*, 69, 70*, 74*; Oct. 69, 125*; *The Sky is Falling,* Nov. 6
CHICAGO, ATTICA & SOUTHERN: May 127
CHICAGO, BURLINGTON & QUINCY: *Vista Domes,* Mar. 39*, 40*, 41*; June 70*; *All Quiet on the Quincy,* July 48; Aug. 124*; Oct. 124*
CHICAGO & EASTERN ILLINOIS: Sept. 128*; Oct. 135
CHICAGO & GALENA: Jan. 131*
CHICAGO & ILLINOIS MIDLAND: Sept. 72*, 73*
CHICAGO, MILWAUKEE, ST. PAUL: *The O.R.C. Kid,* Jan. 110, 131; Feb. 134*; Mar. 91*; Apr. 85*, 134*; Oct. 57*; Dec. cover
CHICAGO, NORTH SHORE & MILWAUKEE: *Fast Train to Tomorrow,* July 104* thru 108*
CHICAGO & NORTHWESTERN: Jan. 124; Feb. 64*; Mar. 86*; Apr. 80*; *Not on the Timecard,* Apr. 110* thru 115*; Sept. 134*
CHICAGO, ROCK ISLAND & PACIFIC: Apr. 82*; June 54*; Dec. 127
CHICAGO, SOUTH SHORE & SOUTH BEND: Dec. 101*
CHICAGO SURFACE LINES: Dec. 99*
CHICAGO & TOMAH: Apr. 110*
CHICAGO & WEST TOWNS: Mar. 95
CHIEF CLERK: *Railway Non-Com,* Sept. 117
CISCO & NORTHEASTERN: Sept. 94*
CITY LINES OF WEST VA.: Aug. 98; Oct. 103
CLEVELAND RAILWAYS: Dec. 99
COFFIN, LORENZO: Sept. 130



OFFICIAL PARTY led by Attorney General Tom Clark, *right*, inspects Emancipation Proclamation aboard *Freedom Train* at start of its 33,400-mile tour of the nation

Press Association Photo

COLORADO & WYOMING: Jan. 56
CONDUCTORS: *Record Perfect,* Jan. 121; *Rolling Wheels,* Feb. 72; *Matrimony Local,* June 26; *Conductor Watson's Retirement,* Oct. 40
CONESTOGA TRANSIT: Mar. 95
CONNECTICUT COMPANY: *Connecticut Company,* Apr. 63* thru 72*; July 110
COUNTIES WITHOUT RAILROADS: Listing, Jan. 130; Apr. 132
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CREE, ALBERT: Jan. 18*
CYLINDERS: *Poppet Valves,* Jan. 45

DANVILLE & WESTERN: *Mixed Train Daily in Virginia,* Oct. 60*, 61*, 62*
DELAWARE & HUDSON: Mar. 66*; Apr. cover; *Delaware & Hudson,* Apr. 6* thru 30*, 116*, Roster, 117* thru 121*; June 53*; July 125*; Aug. 85*; Nov. 133
DELAWARE, LACKAWANNA & WESTERN: May 71
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DELRAY TERMINAL: June 87
DENVER & RIO GRANDE WESTERN: *Narrow-Gage Glory Days (III),* Jan. 94; *Mixed Train Daily,* Feb. 39* thru 43*; *Narrow Gage Glory Days (IV),* Feb. 45* thru 54, 65*, 69*; Mar. 89*, 90*, 124*; *Roundhouse Rats,* May 84, 136*; June 72; July 72; Aug. 68; *Denver West, to Salt Lake,* Sept. 8* thru 25*; *Dave Moffat's Dream,* Sept. 26*, 30; Dec. 130*
DENVER & SALT LAKE: *Denver West, to Salt Lake,* Sept. 8* thru 25*; *Dave Moffat's Dream,* Sept. 26
DENVER TRAMWAYS: Mar. 98
DERAMUS, WILLIAM: Oct. 37*
DES MOINES RAILWAY: Mail car, Apr. 73
DETECTOR CARS: *(See Sperry Rail Detector Cars)*
DETROIT & MACKINAC: May 78
DINING CARS: Apr. 89*; *Solving the Dining Car Problem,* Aug. 51*
DISPATCHERS: *Westbound Main, Apr.* 32; June 137; *Beanery Blockade,* Aug. 102; Nov. 133
DOGS: *Rail Dog,* Mar. 6; Oct. 134
DRIVERS: Jan. 59*; *Pins and Axels,* Feb. 56*; *Rod Packings,* Sept. 64*
DUDLEY, Dr. Plimmon: July 12*

EAST BAY TRANSIT: *East Bay Transportation,* Oct. 93*
EAST BROAD TOP: Jan. 135*
EDAVILLE RAILROAD: *Last of the Two-Footers,* May 54* thru 61*
ELECTRIFICATION: *Electrocuted But Still Alive,* June 99; *B & M Elimination,* Sept. 69; *Water Power vs. Oil,* Oct. 48* thru 59
ELGIN, JOLIET & EASTERN: Sept. 76*, 77*
ENGINEERS: *The O.R.C. Kid,* Jan. 110; *Dead Engine,* Feb. 6; *Uncle Nasty Wheel,* Mar. 55; *Student Fireman,* Mar. 78; *Preaching Hogger,* May 77; *Whirlwind Riggs,* July 34; *Stick 'Em Up,* July 86; *Bull Trouble,* Aug. 42; *Killer McGoon,* Oct. 112; *Uncle Nat,* Dec. 104
ERIE RAILROAD: Feb. 66; Mar. 86*, 132; June 64*; July 64*, 69*; Dec. 82
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FAIRMOUNT PARK TRANSIT: Apr. 74
FESTINOG RAILWAY: Abandonment, Jan. 134
FILTRATION PLANT RAILWAY (Mpls.); Jan. 81
FLORIDA EAST COAST: July 129*
FONDA, JOHNSTOWN & GLOVERSVILLE: Mar. 130*
FORNEY ENGINES: Sept. 87*
FORT DODGE, DES MOINES & SOUTHERN: Oct. 101*

FREEDOM TRAIN: *Freedom Train,* Dec. 6*, 8*
FRENCH NATIONAL RAILWAYS: Feb. 140*; Nov. 85*, 130
FRISCO: *(See* St. Louis-San Francisco)

GARY RAILWAYS: Jan. 87
GENERAL MOTORS: Diesel F-3, Feb. 68*; *Test Run,* May 110, 111*; *Of Things to Come . . . and Go,* Aug. 34*; Sept. 132
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GEORGIA POWER: Nov. 114*
GRAND TRUNK WESTERN: Mar. 92*; *Non-Revenue Trip,* Mar. 100; Aug. 83*
GREAT INDIAN PENINSULAR RAILWAY: Oct. 90*, 91*
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GRIEVANCES: *Grievances in Grub,* Jan. 36
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HAGERSTOWN & FREDERICK: Mar. 95; Dec. 98*
HALIFAX & SCOTLAND NECK: Sept. 139
HARTWELL RAILWAY: *Hartwell Railway,* Jan. 60 thru 80*
HEADLIGHTS: *Headlight Generators,* Apr. 43*; June 85
HELENA, PARKIN & NORTHERN: Sept. 84*
HERSHEY RAIROAD: Jan. 138*
HERSHEY TRANSIT: June 105; *Gone With the Five-Cent Hershey Bar,* Aug 94* thru 97*
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HOBOS: Feb. 120; *Hobos and Hot Cotton,* Mar. 111; May 135
HOISTS: Locomotive, Jan. 55
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HORSECARS: *Keeping Up With Chicago,* May 15; Oct. 93*
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HOWARD TERMINAL: Apr. 77
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ILLINOIS CENTRAL: Mar. 73; dynamometer car, July 60*, 61*, 126*; *Memorial to Casey Jones,* Nov. 110*; *City of New Orleans,* Dec. 36* thru 41*
ILLINOIS POWER COMPANY: Jan. 87
ILLINOIS TERMINAL: Mar. 93*; June 103, 105*
ILLINOIS, UNIVERSITY OF: *Dynamometer cars of the Univ. of Ill.,* July 56
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INTERURBAN RAILWAY & TERMINAL: Dec. 92* thru 97*
ITHACA TRACTION COMPANY: *Electrocuted But Still Alive,* June 99*, 101*

JAMES, JESSE: Aug. 127*
JERSEY CENTRAL LINES: Jan. 52; Mar. 132; Apr. 55*; June 71*; Aug. 133; Dec. 79
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KANSAS CITY PUBLIC SERVICE: Oct. 103
KANSAS CITY SOUTHERN: Mar. 70*; *Kansas City Southern,* Oct. 12* thru 38*
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KEY SYSTEM: Sept. 107; *East Bay Transportation,* Oct. 93 thru 98*, 101
KIMBALL, HAROLD B.: Aug. 89*
KIRBY LUMBER COMPANY: Sept. 87*
KITCHENER & WATERLOO: June 105
KNOXVILLE TRANSIT: Dec. 101

Timothy P. Sexton*

has switched to Calvert because Calvert makes a smoother Old Fashioned.

*of 707 People's State Bank, Indianapolis, Ind.

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City

Photo from W. A. Lucas

NORTHERN PACIFIC's first locomotive, the *Minnetonka*, at the Chicago World's Fair

LANCASTER & CHESTER: June 129; July 127*

LANTERN ARTICLES: *Poppet Valves,* Jan. 44; *Pins and Axels,* Feb. 56*; *Welded Boilers,* Mar. 66; *Headlight Generators,* Apr. 46; *Flue Removal,* May 63; *Sludge Removal,* June 80; *Dynamometer Cars,* July 56; *Dining Car Problem,* Aug. 56; *Rod Packings,* Sept. 64; *Signaling and Electronics,* Oct. 63, Nov. 78; *Injector Economy,* Dec. 74

LARAMIE, NORTH PARK & WESTERN: Jan. 56

LEHIGH & HUDSON: Mar. 138

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LEHIGH VALLEY TRANSIT: Mar. 94*

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LOCOMOTIVE OF THE MONTH: Mexican National, Jan. 58*; General Motors, F-3, Feb. 68*; Wabash, Mar. 77*; N&W, Apr. 46*; C&O 4-6-4, May 74*; B&O P-7, June 89*; Paulista, July 70*; Western Md. 4-8-4, Aug. 66*; EJE Road Transfer, Sept. 76*; *City of Memphis,* Oct. 72*; N & W Switcher, Nov. 90*; PRR T-1, Dec. 84*

LONDON, MIDLAND & SCOTTISH: Nov. 95

LONG ISLAND: Jan. 124*; doubledecker, Oct. 80* thru 83*

LOS ANGELES TRANSIT: Dec. 98

LOUISVILLE & NASHVILLE: Mar. 52*; Sept. 75

MAINE CENTRAL: Roster, Jan. 107* thru 110*; June 136*; Aug. 133*; *Snow on the Rails,* Nov. 8

MANCHESTER & ONEIDA: Apr. 139

MAPS: Rutland, Jan. 15; Filtration Plant Ry., Jan. 83; Phila., Feb. 100; D&H, Apr. 8; Conn. Co., Apr. 65; NP, May 24; Portland Elec., May 94; Rte. of *Cincinnatian,* June 16; B&O Divisions, June 19, 20, 23; CNS&M, July 107; CV, Aug. 11; M&U, Aug. 122; KCS, Oct. 33; CN, Nov. 14; Strasberg, Nov. 72; H&M, Nov. 107; Int. Ry. & Term., Dec. 94

MATTIGAMI RAILROAD: *Canada's Shortest Common Carrier,* May 82*, 83*, 126*

MEIGS RAILROAD: Sept. 104*

MEMPHIS STREET RAILWAY: Oct. 102

MEXICO NATIONAL: Jan. 58*

MICHIGAN CENTRAL: Ma. 131

MIDDLETOWN & UNIONVILLE: Apr. 52*; Aug. 120* thru 123*

MILWAUKEE ELECTRIC: Mar. 95*; Apr. 73

MINISTER, RAILROAD: *Sky-Pilot of the Rails,* Jan. 6

MISSOURI-KANSAS-TEXAS: Aug. 140; Sept. 73; *Trackside Grave,* Dec. 91

MISSOURI PACIFIC: Jan. 129; Feb. 30*; heaviest crew, Feb. 121*, 127; Apr. 90; May 44; Aug. 129

MOFFAT ROAD: *(See* Denver & Salt Lake)

MONON: May 68*; Aug. 129

MONORAILS: Meigs, Mar. 135*; Combs, Sept. 98

MONTOUR: Aug. 62*

MORSE, SAMUEL: Mar. 9*

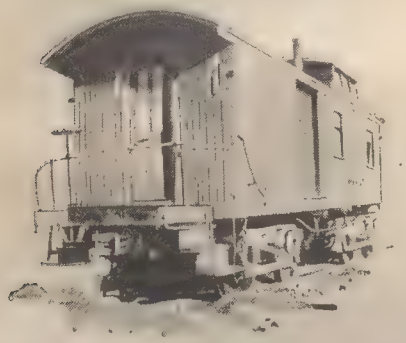
MOTION PICTURES: *Talented Train,* Nov. 119

MUNICIPAL RY. OF SAN FRANCISCO: June 103; Sept. 105*

NANTUCKET RAILROAD: Mar. 74*

NAPIERVILLE JUNCTION: Aug. 84*

NARROW-GAGES: *Narrow-Gage Glory Days (III),* Jan. 94, 134; *Mixed Train Daily,* Feb. 39; *Narrow-Gage Glory Days (IV),* Feb. 45, 47*; *Last of the Two-Footers,* May 54
NASHVILLE, CHAT. & ST. LOUIS: *Sing Us a Song,* Sept. 42; City of Memphis *Pacific,* Oct. 72*
NAVIN, W. E.: Jan. 19*
NEVADA COPPER BELT: Nov. 128*
NEW ORLEANS & NORTH WESTERN: Feb. 58*
NEW YORK CENTRAL: *Boomer's Beginning,* Jan. 88; Feb. 120*; *Rail Dog, Mar.* 6, 71; Apr. 51*, 52, 78*, 92*;; May 69, 92*; June 127; July 12*, 20*, 24*, 26*, 134*; Aug. 125; Sept. 71*, 131*, 140*; Nov. 86*, 87*, 88; Dec. 79*, 80*
NEW YORK CITY TRANSIT SYSTEM: Nov. 88*, 114



CABOOSE on the Middletown & Unionville

NEW YORK, NEW HAVEN & HARTFORD: Mar. 72, 73; Apr. 66*; July 125*; Aug. 100; Nov. 82*, 83, 129*
NEW YORK, ONTARIO & WESTERN: Jan. 126, 127*, 136*; Feb. 60*, 122*, 123*; Apr. 51*; May 128*, 134*; Aug. 125
NEW YORK, SUSQUEHANNA & WESTERN: June 47*, 48*
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NIAGARA, ST. CATHERINES & TORONTO: Oct. 102*
NORFOLK & WESTERN: Apr. 46*, 47*; May 139; Nov. 90*, 91*, 92*, 93*; Dec. 132
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NORTHWESTERN RAILROAD OF MEXICO: *According to the Rule,* Feb. 113*, 116*

OAKLAND CABLE RAILWAY: Oct. 96*

OBSERVATION CARS: June 10*, 11*, 63*; July 85*; Dec. 41*, 57*
OKLAHOMA RAILWAY: Mar. 98
OPERATORS: Jan. 129*; *Traveling Op,* Mar. 42; Apr. 56; *Double-Track Debut,* May 6; *Railroad Rhythm,* June 106; Oct. 67*; Copies, Oct. 74; *Jawbone,* Nov. 40
OREGON WATER POWER: Aug. 100

PACIFIC ELECTRIC: Jan. 85; Dec. 131*

PACIFIC GREAT EASTERN: Apr. 53
PARODNECK, MEYER: Jan 22*
PASSENGER TRAINS: *The Passenger Problem,* June 44; Dec. 125
PATENTS: First U. S.; Jan. 52
PATTERSON & WESTERN: Sept. 132*
PAULISTA RAILWAY: July 70*; Oct. 71*
PCC CARS: Number in use, Dec. 80
PEGLEG RAILROAD: Sept. 101
PENNSYLVANIA RAILROAD: Jan. 28*, 54*, 134; Feb. 61; Mar. 71*; Apr. 96*, 107*; May 67*, 72*; June 90*; Model 2-10-4 type, July 102, 130; Aug. 134; Oct. 125*, 126*; Nov. 84, X-Ray machine, Nov. 89*, 131*; *Pennsy's Steel Thunderbolts,* Dec. 53* thru 57*, 81*, class T-1 modified, Dec. 84

PERE MARQUETTE: Apr. 85*, 89*; Merger with C & O, Oct. 69
PHILADELPHIA TRANSPORTATION CO.: *High-Speed Operation in Large Cities,* Feb. 99* thru 106*; Apr. 74*, 75
PIEDMONT & NORTHERN: June 103
PITTSBURGH COUNTY: Sept. 108
PITTSBURGH & LAKE ERIE: Sept. 131
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PITTSBURGH, SHAWMUT & NORTHERN: Feb. 120; May 130; Sept. 97; Oct. 131
PLOWS: Apr. 20*; Sept. 20*, 21*
POETRY: *Freight Train,* Mar. 136; *That Old Bug of Mine,* Aug. 137
POLICE, RAILROAD: *Railroad Bull,* Apr. 101
PORTLAND ELECTRIC POWER: *Oregon Trail,* May 93* thru 97*; Aug. 101
PORTLAND TERMINAL: Feb. 141*
PROVIDENCE & DANIELSON: Apr. 65
PUBLIC SERVICE COORDINATED: Aug. 98, 100
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QUINCY RAILROAD: *All Quiet on the Quincy,* July 48* thru 53*

RAILROAD POSTOFFICE CARS: Sept. 106
RAVER, PAUL: Oct. 51*
READING: Feb. 66; June 139; Aug. 62*
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RIO GRANDE & EAGLE PASS: Oct. 132
RIO GRANDE SOUTHERN: May 70*
RULES: *Forgotten Rules,* Aug 6
RUTLAND: *The Barlow Plan,* Jan 10*, 17*; Feb. 61*; May 125; Nov. 136

ST. CLAIR TUNNEL COMPANY: Dec. 101*
ST. JOHNSBURY & LAKE CHAMPLAIN: *Vermont Vignette,* Mar. 104* thru 110*
ST. LOUIS PUBLIC SERVICE: Oct. 99*
ST. LOUIS RY. & HISTORICAL SOC.: Oct. 99*
ST. LOUIS & SAN FRANCISCO: *Friscco Press Agent,* Feb. 92; Apr. 86*; Dec. 124*
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SANTA FE: *Speedster For the Santa Fe,* Jan. 24*; Feb. 63; Mar. 73*; *Student Fireman,* Mar. 78; Apr. 86*, 87*; *Double-Track Debut,* May 6; July cover; *Clear Block-Gray Hair,* July 47, 68*; Aug. 37*, 129*, 132*; Nov. 38*
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SARATOGA & SCHUYLERVILLE: Jan. 41*; May 131
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SOUTHERN IRON & EQUIPMENT: Sept. 89*
SOUTHERN PACIFIC: *Strange Special,* Jan. 26* thru 31*, 55; Mar. 91*; Apr. 51, 98*, *Railroad Bull,* Apr. 101; June cover; *New War Bonnet for the Super Chief,* July 6, *World's Most Photographed Engine,* July 8* thru 11* Aug. 35*, 36*, 38*, 40*, 41*; Sept. 72; *Port Chaw,* Oct. 104*, 108*
SPEED: *Annual Speed Survey,* Apr. 78
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STILWELL, ARTHUR: Oct. 14*
STOCKTON TERMINAL & EASTERN: Aug. 131*
STRASBURG RAILROAD: *Our Oldest Short Line,* Nov. 70* thru 77*
STRIKES: Jan. 124
SWISS FEDERAL RAILWAYS: Sept. 32* thru 41*, 136, 137*

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TEMISKAMING & NORTHERN ONTARIO: May 126*
TERMINAL RAIROAD ASSN. OF ST. LOUIS: Feb. cover, *Union Station,* Feb. 10
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TEXAS & PACIFIC: June 62*; Dec. 82
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TOLEDO, PEORIA & EASTERN: Nov. 87
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UNITED TRACTION CO.: Jan. 86
UTAH-IDAHO CENTRAL: May 98; July; 112; Aug. 39*, 41*; Dec. 102

VALVES: *Poppet Valves,* Jan. 44*; June 134
VAUCLAIN, SAM: Jan. 31*
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WATKINS, SAM: May 77*
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WELDING: Multiple-Spot, Apr. 50*; Aug. 60
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WESTERN PACIFIC: Mar. 87*; *Beanery Blockade,* Aug. 102, 104*, 106*, 112*, 115, 130*
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WOOD RIVER BRANCH: Oct. 127
WRECKS: C&NW, Apr. 108; deliberate, Nov. 95
WUPPER VALLEY: Sept. 100*; Nov. 139

YAKIMA VALLEY TRANSPORTATION: June 104; July 111*
YARDS: Rutland, Jan. 17*; July 125*; Aug. 13; *Night Yardmaster,* Sept. 110; Nov. 78*
YORK UTILITIES: Feb. 108; June 102*; July 113
YOUNGSTOWN & SOUTHERN: May 99*

James E. Sorrels*

has switched to Calvert because Calvert makes a lighter highball.

*of 1015 S. Rosemont, Dallas, Texas

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City

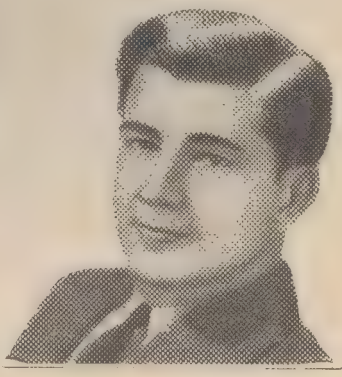

Photo by Philip T. Leonard, 6th Ave., Sur 31, Guatemala City, C. A.

TEN-WHEELER built by Baldwin once burned wood and trundled trains over the high iron in Maya-land. Now, like all IRCA engines, Number 95 burns oil, is relegated to yard work

On the Spot

JUNGLE railroader is D. E. Sheeran, superintendent of the Pacific Division, International Railways of Central America, with headquarters at Guatemala City, Guatemala. Mr. Sheeran writes:

"While I don't class myself as a boomer, I have worked around several pikes such as the Cincinnati Northern, the Cincinnati Union Terminal, the Big Four, the Baltimore & Ohio, the Seaboard, and under a flag on the Missouri Pacific. The name of that flag is not publishable, as the man whose name I used is back on the MoP. I also worked for the Tela Railroad in Honduras and am now with the IRCA. During the second World War I served in the 728th Railway Operating Battalion as assistant trainmaster and road foreman of engines. I've also done my bit as hostler helper, car helper and inspector, electrician helper, mudhop, crew dispatcher, station clerk, fireman, brakeman, yard conductor, road conductor, dispatcher, and now super.

"I'm staying with this pike, for I have yet to find a road that has anything to compare with the IRCA's narrow-gage rambling through the jungles and over the mountains of the divide. An acquaintance of mine, Phillip Leonard, has walked countless miles along the IRCA, taking photos of this road and its equipment, spending many of his off days and hours from his job as Pan American Airways' radio operator, about the IRCA yards, offices and trackage."

Our Guatemala correspondent sent us a September reader's choice coupon with these comments: "Roach is always good" and "Haywire Mac, too, is always good reading." (Incidentally, we heard Haywire Mac on the Ford radio program the

other night singing some of his famous folk-lore and twanging a banjo.) Mr. Sheeran says he finds articles about short lines of great interest but prefers to see more photos, maps, and diagrams of road and yard layouts.

He adds: "*Railroad Magazine* helps me to keep up-to-date on U. S. roads. Though the pike I work for is operated largely on U. S. standards, we differ in a lot of details, particularly with regard to language. U. S. railroad terms are not readily translatable into Spanish."

* * *

ABANDONED. One of the steepest and most crooked standard-gage branch lines on earth, the Southern Pacific's Cloudcroft branch in New Mexico, has become a mere scar in the wilderness. The pathetic little freight train that had been chugging its lonely way with one round trip a week since December '44 got discouraged and quit altogether September 15th. Operation was discontinued with ICC permission, as a result, the *SP Bulletin* says, of out-of-pocket losses for the past two years and no prospects of profitable operation in the future.

This streak o' rust was built in 1898-1903 by the Alamogordo & Sacramento Mt. RR. Co. to tap timber and mountain resort territory. The road was a wholly-owned subsidiary of the El Paso & Southwestern, which was merged with the SP in 1924. The branch shot off from the SP main stem at Alamogordo Jct. and rambled through the mountains in a generally easterly and then southerly direction. It zigzagged into curves following all points of the compass, many up to thirty degrees. Grade exceeded five percent.

There were sixty-one trestles built of timber, totalling 5244 lineal feet, in the approximately 31½ miles of track which traversed the Alamo National Forest and terminated at the village of Russia. One trestle supported two 30-degree reverse curves. At one station, Toboggan, a switch-back was needed in the ascent from a narrow canyon. Total climb from Alamogordo to Russia was 4753 feet. Two Consolidation (2-8-0) type engines were used, their tenders coupled by especially long links. Track gage had been widened at sharp curves. Specially-designed observation cars were operated over the line until March '37, when all passenger service ended.

Logs comprised most of the Cloudcroft branch freight, this material being hauled to Alamogordo sawmills. For years most of the ties used on the SP's Rio Grande and Tucson divisions came from this branch. The SP still has a tie-treating plant at Alamogordo, but since November '45 most of the region's lumber has been transported by motor truck.

* * *

EEL RIVER ROAD. Mention of this line in a *Spot* department item from Cary T. Ray last August belatedly prompted a Wabash ticket clerk, Clyde M. Betts, 1231 W. Main St., Decatur, Ill., to announce that among his collection of Wabash railroadiana is an Eel River R. R. pass for 1878.

"I have nothing which shows the Detroit, Eel River & Wabash," he writes, "that name possibly having been prior to 1878. However, I do offer a correction. The Wabash, St. Louis & Pacific guide for December 13, 1885, lists Logansport as junction point for trains enroute to Detroit and Toledo. The through St. Louis-Detroit trains ran over the old Eel River road direct from Logansport to Detroit, while the St. Louis-Toledo trains ran over the present Wabash line from Logansport through Ft. Wayne and Defiance. The old Eel River RR. is now a freight-only line on the Pennsy. Sometime after August the Wabash disposed of the Eel River road and built the line between New Haven and Butler, Ind. It would be interesting to know when and why this was done."

* * *

DOUBLE STACK. W. W. Knight, 5519 2nd Court, N., Birmingham 6, Ala., tells us about the adoption of the

Photo by Richard J. Cook, 3402 W. 135 St., Cleveland, O.

NOPE, this is not a super smoke deflector; it's Nickle Plate 863 rigged up as a stationary boiler at Bellevue, O., during construction on engine facilities

double stack on Southern Ry. engine No. 4050, a simple Mallet.

"About a month after the delivery of this engine to the Southern," he writes, "I visited Nashville, Tenn., and stopped at the Atkins Hotel. On Thursday night in the lobby I overheard a group of men discussing locomotive front-end problems. The next evening, I recognized two of those men seated near me, and brought up the subject they had talked about the night before. Being asked if I were a locomotive man, I admitted I'd had many years of intimate practical experience with steam engines. One man then introduced himself as Mr. McCarroll and his companion as Mr. Jackson. He explained that Jackson had delivered engine 4050 to the Southern but that, due to her deficiency in steaming, President Vauclain of Baldwin Locomotive Works had sent him, McCarroll, down to Birmingham to correct the difficulty.

"It seemed that McCarroll had tried many expedients without success. He expressed pleasure at meeting me, remarking that a fresh mind might be of much help. He said the type of exhaust nozzle used on the 4050 provided a center post for the exhaust of one pair of cylinders and a ring post around the center post for the exhaust of the second pair. Then he invited me up to his room and showed me a fullsize diagram of the front end drawn upon the wall, indicating the various changes he had made in the draft rigging, and so on.

"The next day, accepting an urgent invitation, I went with McCarroll and Jackson to see this engine at the John Seveir Yard roundhouse. The 4050 being the first simple Mallet I had ever seen, it occurred to me that the problem might be solved using two separate exhaust nozzles and a double stack. This idea I suggested to Mr. McCarroll. He thanked me. Some days passed. Then I received a letter from him saying: 'You will be interested to know that I followed your suggestion of the double stack and it solved the problem.' "

* * *

CRITICIZING our editorial about Robert R. Young (Nov. '47), Wayne Lincoln, P. O. Box 550, Atlanta, Ga., says it "not only fails to show any fallacy in Mr. Young's policies but, to the thorough reader, inadvertently indorses them," and continues:

"The railroads certainly did a good job during wartime, and they did it without a lot of other operating employes who were drafted. And freight moved a lot faster from source to destination than it does now, yet without a noticeably higher average siding-to-siding speed.

"You carefully avoid an explanation of the 118 hours and 30 minutes, and to an intelligent reader the reason is evident: Only Mr. Young has an explanation, and you don't like it. Please give us all the facts, if you have them. We both know that big business in railroading has

throttled competition by creating a monopoly which has handed truck-line operators many a silver platter, so how about letting Mr. Young give his side of it?"

It appears to us of *Railroad Magazine* staff that Mr. Young has already had his say. And in writing for railroad men, it hardly seemed necessary for us to point up the duplication of Chicago-to-the-West-Coast freight-schedule time. Mr. Young's inference is that all roads slow down to the pace of the most handicapped line. Actually, this is not what happens. By cutting train weight, and by other operating expedients, the system having the longest routage or heaviest gradients generally contrives to match the time of the more favored carrier.

* * *

DIESELS are slashing Boston & Maine operating expenses, according to William L. Rohde, 39 Montague City Rd., Greenfield, Mass.

The thundering, red and yellow oil-swallowers saved the railroad $1,750,000 on its 1946 fuel bill for locomotives. The 114th annual report of the carrier, just made public, reveals that in the last few months of 1946, after all Diesels on order had been delivered, eighty percent of the gross-ton miles in freight service and thirty-nine percent of the passenger train car miles were Diesel hauled. Management states that if this movement had been made entirely with steam locomotives, the increase in costs for locomotive fuel would have been about $1,750,000. 1946 freight revenues for the B&M were the highest of any peacetime year, but the rate of return on the carrier's capital investment was only 1.8 percent, not sufficient to meet the income mortgage sinking fund or provide any dividends to stockholders.

Equipment obligations, however, are not included in the long term debt outstanding in the hands of the public . . . 89 million dollars plus on December 31, 1946. The directors state that no recapitalization of the road is being considered at present.

* * *

DISGUSTED just about expresses the feelings of Kenneth T. Wilbur, 1345 N. W. 31st St., Miami 37, Fla., for the steam *vs.* Diesel controversy. Says he:

"I am fed up with the sentimental mush about leaky old teakettles that should have been scrapped before I was born (twenty-six years ago). Why, Oh why, can't some people realize that this is a competitive age in the transportation field, and if the railroads expect to hold their own they must not lag behind? Much motive power is too old. If a trucking concern used Model T Fords instead of the big, fast, semi-trailer rigs they operate for intercity hauling, how long would it last?

"There is nothing ugly about a Diesel. Most Diesels used in road service are artistically designed and tastefully painted. They are not nearly so noisy as steam

CAN YOUR SCALP PASS THE
*F-N TEST?
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CREAM-OIL CHARLIE SAYS: "IT CONTAINS LANOLIN!"
3 TUNE IN ... 2 NETWORK SHOWS! "The Adventures of Sam Spade" Sun. evenings, CBS Network; "King Cole Trio Time" Sat. afternoons, NBC Network.
WILDROOT CREAM-OIL HAIR TONIC
WILDROOT CREAM-OIL Hair-Tonic

Photo by Peter Dobbins, 287 Elm Ave., Rahway, N. J.

CONSOLIDATION Number 5 at Sayresville, N. J., on the Raritan River's siding to Owens Illinois Glass Co.

engines, they emit no cinders, nor do they leave heavy palls of smoke over cities such as Pittsburgh. On that last point alone, if it were economically feasible I would advocate scrapping every steam job now in service.

"If tests prove it is more economical to use steam power of modern design, then by all means steam should be utilized. The same goes for Diesel. Steam fans should stop shedding meaningless tears over the inroads that Diesels are making on their steam cousins, and stop gloating whenever a picture of a steam engine helping a Diesel shows up. Steam locomotives aren't mechanically perfect, either."

* * *

VETERAN of many a battle with other roads during the 100-odd years of its history, the Pennsylvania is now tangling with the 19-mile Raritan River Railroad in New Jersey. The point at issue is whether or not the Pennsy has the right to build a spur across a Middlesex County highway in order to reach the new plant of Owens Illinois Glass Co., at Sayresville, N. J.

The tiny freight road fought sharply at a public hearing before the county's Board of Freeholders and won a decision, the Freeholders rescinding a previous authorization for the Pennsy to cross the highway in question. As we go to press, the situation is this: The PRR has filed an appeal with the N. J. State Board of Public Utility Commissioners asking a reversal of the Freeholders' recent stand.

The Raritan River holds a trump card in that it already has a siding into the plant to which its big opponent seeks access. This obviates the possibility of a simultaneous tracklaying contest to the plant, such as occurred shortly before World War II, when the PRR raced the Jersey Central for the business of General Motors at Linden, N. J. Although the Jersey Central really had first call on the business, the Pennsy won out. Our information comes from P. W. Blaze, 504 Tyler St., Trenton, N. J.

* * *

CORRECTING himself, Robert W. Richardson, 477 E. Market St., Akron, O., notes that we quoted him in

our October issue, page 126, to the effect that the Eastern Tennessee & Western North Carolina narrow-gage had ceased operation. He says now that this was misinformation given to him by a local resident who professed to know. Recently he was informed by the son of a retired conductor, Frank T. Williams, 504 W. Pine St., Johnson City, Tenn., that the narrow-gage part of the road still runs trains thrice weekly. Mr. Williams added:

"A few months back, the narrow-gage equipment, consisting of three engines, two baggage cars, six tank cars, several boxcars and gondolas, was moved to Elizabethton, and all the narrow-gage rail, 701 pounds, was taken up and the track was relaid to standard-gage with 112-pound rail from Johnson City to Elizabethton and in the yards. However, they still run slim-gage trains on the average of three times a week from there to Cranberry and return."

Mr. Richardson reports that the Denver & Rio Grande Western has applied for ICC permission to abandon the portion of its Salida-Montrose narrow-gage line that runs between Sapinero and Cedar Creek, Colo. This includes trackage through the Black Canyon past the famous Curecanti Needle, which used to be pictured on the road's emblem, and up the steep grades to Cerro Summit. Cedar Creek for the past five years or more has been the scene of an increasingly serious landslide. One spring the rails were removed and not relaid until the fall stock rush.

Photo from William Bassler, 2112 Cedar St., Alhambra, Calif.

SANTA FE engine Number 135 heads a long freight drag on the Techachapi Pass line

* * *

WOMAN OP. We are glad to hear again from Sue M. Morehead, Box 1352, Weed, Calif., whose life story in our January '44 issue created a flow of reader comment.

"Last March," she writes, "I traded my seniority rights on the SP's Tucson Division with those of the first-trick operator on the Shasta Division. For the first time in my life I am living in a company house, which, with a little ingenuity and much help from the SP's bridge and building department, we have made rather comfortable.

"New, safer methods and devices are employed in the handling of trains and the delivery of train orders. Gone is the old bamboo hoop passed up by hand. In its place stands a well-lighted train-order post equipped with mechanical high-speed string holding forks. The latter device is more practical and efficient and assures a maximum of safety to all concerned.

"There is still a great need for operators, especially Morse, which is one of

Photo by Tal Morehead

MORSE keeps modern with Sue Morehead, *above*, at Bolan, Calif. Train order post has replaced old hand hoop

the reasons I am still working. The job fascinates me. I never fail to get a thrill out of OS-ing a train by with no slip up on orders or clearance. Heavy mountain grades necessitate the use of helper engines from Dunsmuir to Grass Lake, the next station east of Bolan. They are then run right back to Dunsmuir. The big Mallets are operated almost exclusively on freights and they really puff and snort while climbing these grades.

"Our closest town for shopping is Weed, a lumber-mill settlement. Every day but Saturday, Sunday and holidays, the Weed logging train runs from Weed to Leaf, where logs are picked up for the Long Bell Lumber Co. and hauled to Weed, where they are sawed into lumber —to relieve the housing shortage, we hope. Deer, rabbit and quail are among the wild life abundant in these mountains. Around mid-September the steelhead and salmon run in the Shasta River, when we go a-fishin', after which the deer season offers a supply of venison.

"My husband, Tal Morehead, who also writes occasionally for *Railroad Magazine*, has been pensioned by the SP. Some fine day we're gonna head toward Santa Cruz, Calif., to find a new home, where Tal can spend the rest of his days fishing and gardening, and I will return to my old job of being a housewife. Even so, I'll never forget my days with the railroad and every time I hear a train whistle for a station I'll be wondering if the board is clear."

Well spoken, Sue! And now we hear from your husband. Tal wants to know if any reader younger than he is can beat his record. He states:

"In 1906, a few weeks before my 13th birthday, I started railroading as a callboy on the Milwaukee Road. Altogether I've had thirty-eight years of service on three different roads. I was pensioned at age of fifty-three on account of deafness. My friends seem to think that's a pretty long record for a railbird to start so young and be pensioned in middle age."

* * *

NAMING of towns during the westward march of the Union Pacific in the late 1860s was done in hit-or-miss fashion, according to Ralph Emerson Woods, 106 Miller Ave., San Jose 12, Calif. One such incident involves Patrick Walsh, section foreman at the switch 172 miles west of Omaha, who was also postmaster with a boxcar for a temporary postoffice. Pat was irked at the name Wood River Center given to his station. It was too much like the name Wood River, a village six miles east of him. Pat did not like to play second fiddle to anyone. So he decided to call his station Shalton, in honor of a UP auditor, he admired, and wrote as follows to the postmaster general, Washington, D. C.:

"You are hereby notified that the place heretofore known as Wood River Center has this day been changed to Shelton, Nebraska, and govern yourself accordingly. Respectfully, Patrick Walsh, Postmaster."

Instead of resenting this action, the Post Office Department accepted it at face value, confirmed the new name, and forwarded Pat a new hand-cancellation stamp. Today Shelton is the center of a rich farming community. Streamliners and mile-long freights roar through it, near an old cemetery in which one of the names carved on a headstone is Patrick Walsh.

John M. Haggerty, Box 2331, Boston 7, Mass., tells us about other station names. Two are located on the old New York & Ottawa Railroad, which in 1908 ran between Ottawa, Canada, and Tupper Lake, N. Y., but is now part of the New York Central system operating only between Ottawa and Helena, N. Y. One is Uscan, an abbreviation of U. S.-Canada. The other was Nyando, from the road's initials, but has since been changed to Rooseveltown in honor of Franklin D. Roosevelt.

The railroad bridge at Rooseveltown is now used jointly for railroad and automobile traffic. It is a single-track road, so the bridge is just about wide enough for two cars to pass. Planks were laid over the ties, and, presto! a toll bridge resulted.

In Saskatchewan the Canadian National has a station Canora, designated from the first two letters of what used to be the Canadian Northern Ry. The B&M station of Tewksbury, Mass., has been renamed Baldwin, presumably in honor of an old station agent who served there many years. At one time, according to Mr. Haggerty, Tewksbury had eight stations on that road; today not one of them remains, and where five of them used to stand, the rails have been torn up. Near Clinton, Mass., the name of a B & M station was changed to Thayer, evidently after a socially prominent family.

On the New Haven branch which runs between Lowell and New Bedford, Mass., which can boast of only one freight train each way daily except Sunday, the South Chelmsford station has been renamed Byams, possibly after a former station agent, Lyman Byams. A similar case occurred on the old Connecticut & Passumpsic Division, B&M, which runs between White River Jct. and Wells River, Vt., where Passumpsic was renamed Kendall in honor of a station agent.

* * *

INFORMATION WANTED. Don MacKay, 2020 Lomita Blvd., Lomita, Calif., writes: "Down in Florida about 30 years ago a small girl was picking berries in the woods when a rattlesnake bit her face. An engineer on a passenger train happened to witness the attack. Stopping his train, he saved the girl's life. Can some reader tell me the name of the road, the engineer, the girl, or anything else about the case?"

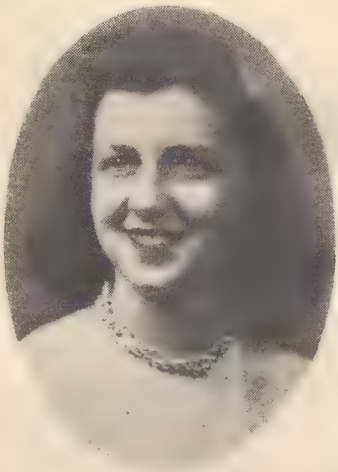
William C. Kelley*

has switched to Calvert because Calvert is mellower.

*of 5508 Windsor Mill Rd., Baltimore, Md.

CALVERT RESERVE Blended Whiskey—86.8 Proof—65% Grain Neutral Spirits. Calvert Distillers Corp., New York City

STATION agent of the Norfolk Southern at Camden, N. C., who was mentioned but not named in Henry T. Crittenden's description of a trip turns out to be Linda M. Upton. This gal began working for the NS after finishing a course at the University of North Carolina.



Linda M. Upton

"I started railroading at Camden in the potato season," she writes. "This is the busiest season here, lasting about two months. After the second season, I clerked for 2½ years in the NS station at Plymouth, N. C., but returned to Camden on New Year's Day, 1943, when the agent resigned here and I was offered the job, a joint railway and express agency. Here I have worked ever since.

"I report to three departments, Operating, Accounting and Traffic. My biggest problem is trying to satisfy the public. I aim to be accommodating to those I serve. My top ambition is to make Camden the best station on the Norfolk Southern."

One of Linda's hobbies is collecting railroad pictures. She has shots of locomotives ranging from the early wood-burners to the most modern types, tacked on her office walls.

* * *

ANSWERING a query in the October issue about a wreck on the old Pittsburg, Shawmut & Northern, Nathan Wells, 213 1st National Bank Bldg., Harrisonburg, Va., offers his diary as evidence an entry for Sunday, September 22, 1912, shows that Extra South excursion train Number 11 met Extra North Number 68 about one mile north of Nile station between 7 and 8 p. m., killing two passengers and three of the crew. Engr. Johnson of Number 11 died of his injuries only a few days after the terrible wreck.

"At that time," Mr. Wells informs us, "I was personal stenographer to the late Frank S. Smith, for many years receiver of the Shawmut. I also acted as stenographer in the coroner's inquest held at Friendship. The passenger train hauled by engine 11 had orders to meet the freight at Friendship passing siding, about a mile south of that village. A light engine, northbound, lay on the siding. Her crew neglected to hood the headlight, with the result that the passenger-train crew assumed she was the freight. They met head-on in a deep cut with such force that the light passenger engine with two coaches was driven back down the track several hundred feet before they piled up. Jack McLaughlin was conductor of the passenger train. Jerry Wells, Number 11's fireman, testified that he was throwing in coal when they met, and the next thing he knew he was walking across a field."

* * *

SOUVENIR, apparently of a rate war, is a book owned by Donald B. Johns, 1111 Boylston Ave., Seattle 1, Wash.,

Photo from Wm. B. Gwaltney, 2808 Kimball, Norfolk, Va.

FROM landing on Pagan River *above*, car ferries will operate over Smithfield Terminal Ry. to C&O terminal at Newport News, Va.

entitled *Erie Railway, Local Passenger Tariff,* effective January 1, 1865, issued to the agent at Warsaw, N. Y., with two supplements pasted in the back. One supplement refers to the addition of a new station, Griswold. The other is a letter addressed to the Warsaw ticket agent.

It reads as follows:

"Dear Sir: I send you a supply of tickets, 'New York to Boston via Bristol Line steamers,' to be placed on sale at your office. Until further advised, you may sell them for One Dollar each, and report sales to the Auditor on Form 278. Please receipt and return the enclosed requisition to this office. Respectfully, Wm. R. Barr, Gen'l Passenger Agent."

Can some reader tell Mr. Johns whether or not this low fare between New York and Boston was normal, or did it show the effect of a rate war?

* * *

TICKET punches on the Pennsylvania RR. are made in 2690 patterns Each is numbered, the numbers appearing on one side of the punch itself. Until recent years each conductor was issued all the punches of one specific pattern and he assigned them to the ticket collectors on his train. Now, however, the Pennsy has exhausted the possibilities for new punch patterns and has had difficulty in obtaining new punches. As a result, the former method of assigning each pattern to a conductor has been changed. Each conductor and each ticket collector is now assigned a punch for his own use. Care is exercised to see that punches of the same pattern are assigned to men working on divisions that do not adjoin, so that confusion in identifying specific tickets is avoided.

Six punches have pattern No. 1. One is assigned to R. O. Schultheis, a New York Division ticket collector. Another is held by J. C. Bowman, a Cleveland Division ticket collector. Two are entrusted to the ticket agent at New Castle, Pa., and the other two at Sunbury, Pa.

When a conductor leaves railroad service he turns in his punch pattern and it is re-issued to another man when needed. Conductors have no selection in the matter of patterns; each must accept the one issued to him. Every conductor in active service has a different pattern; but the ticket collectors may have patterns which duplicate punches held by others, as in the case of No. 1.

* * *

TRACKMEN of the SP's Sacramento Division recently hung up an enviable record when they laid new rail through the longest tunnel in the Sierras without a serious delay to train operation. The tunnel, No. 41, cuts a straight line 10,326 feet long through the granite-rocked Judah Ridge just east of Norden station. The ridge reaches 8100 feet above sea level, the tunnel being 1300 feet below the crest.

Besides relaying the rails, the job called for renewing all crossties, replenishing ballast, and lining and resurfacing the track. Gen. Foreman J. T. Fulbright and Extra Gang Foreman George Minard and

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NICK CARTER
Sundays, 6:30 p.m., EST.
Lon Clark as radio's Nick Carter

SCOTLAND YARD
Mondays, 8:00 p.m., EST.
Basil Rathbone as Inspector Burke

HIGH ADVENTURE
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Dramatic action and adventure

MYSTERIOUS TRAVELLER
Tuesdays, 8:00 p.m., EST.
Eerie and supernatural tales

THE ZANE GREY SHOW
Tuesdays, 9:30 p.m., EST.
Stories of western adventure

RACKET SMASHERS
Wednesdays, 8:00 p.m., EST.
Experts counteract crime

QUIET PLEASE
Wednesdays, 8:30 p.m., EST.
By W. Cooper, writer of "Lights Out"

SCARLET QUEEN
Thursdays, 8:30 p.m., EST.
Action aboard the "Scarlet Queen"

MUTUAL BROADCASTING SYSTEM, INC.

END of the last run for a typical veteran railroader. C&NW Conductor Ralph A. Mackay received a pleasant surprise on his retirement last April 30th when commuters on his suburban train presented him with a parting gift of more than $100 in cash and a fine set of fishing tackle. May they all be big ones, Ralph!

Courtesy Chicago & North Western

Tony Nelson supervised the 85-man gang engaged in the work. They relaid rail at the rate of fifty-five seconds per 39-foot length. The two-mile tunnel job cost $73,000.

* * *

CONTRADICTING a statement in a recent *Spot* department that the gas turbine locomotive being built by Baldwin for the Santa Fe was the first attempt to build an oil-fueled engine of this kind, Edward H. Livesay, 967 N. Park St., Victoria, B. C., Canada, points out that a gas turbine locomotive was built by Brown-Boveri of Baden, Switzerland, six years ago for Swiss Federal Railways and has been running ever since. As a result of this engine's success, the Great Western Ry. of England had a similar but more powerful locomotive built by the same company, one that develops 250 hp., has a tractive effort of 33,000 pounds, and can handle the standard GW trains running non-stop between London and Plymouth, 224 miles, at an average of sixty mph and maximum of ninety. Another gas turbine locomotive is being built by Metropolitan-Vickers of Manchester, England, for GW, which will have a tractive effort of 60,000 pounds and handle 650-ton trains at speeds up to ninety mph over all GW main lines. This engine will weigh 120 tons, with all that weight available for adhesion, and will run on two 6-wheel trucks, all six axles being motor-driven.

There is much need for improvement in British railway passenger service, reports Isaac Kirkham, leading steward, RNSS *Fort Southwick,* near Hareham, Hants, England, who seems to think nationalization plans have something to do with the present deterioration in schedules and overcrowding of trains. An unusual feature of a trip he took recently was the use of coaches marked "Second Class." He can't remember the last previous time he'd seen a second-class compartment in Britain.

"Rail journeys, for me, are full of life, action and color," he adds. "I used to be a keen cyclist, but modern traffic has made the highways a nightmare to a man on two wheels. I revel in the comparative ease and safety of rail comfort."

Mr. Kirkham sends us a clipping from the Portsmouth, England, *Evening News,* entitled The Railway 'Rustlers' Rode at Dawn," by Robert Forbes. It is amusing and exciting enough to warrant passing on to American readers. Mr. Forbes writes:

"I expect you have often seen on the films those 'Wild West' train battles. You know the sort of thing—a train loaded with 'roughs' steams into the station of a rival company, they find the railwaymen prepared for them, and a free fight en-

sues. It usually happens as the result of rivalry between two companies for the right to run a competitive service. The sort of thing that could happen only in America, you've thought, but there you would be wrong, for that is exactly what happened at Havant (in England) eighty-eight years ago."

The trouble started because a new company, the Portsmouth Direct Ry., was authorized to build a line between Shafford Jct. (near Guildford) and Havant, thus providing a much shorter London-Portsmouth route than the other two then existing rail routes, the London, Brighton & South Coast and the London & South-Western.

"Naturally," says Forbes, "every obstacle was put in the way of the Portsmouth company."

However, the conflict was not dragged out in the open until 1858, when the new line was nearly ready for opening and was leased to the L&SW. The L&SW announced that the cutoff would be opened January 1, 1859. Four days before that they operated a test run at 10 a. m.

"But this was a 'blind,'" Forbes goes on, "for the first train, with 100 'roughs' as passengers, set off three hours earlier in the hope of finding the LB&SC unprepared for them. The Havant officials, however, were ready for such an emergency. . . The 'down' points at the junction of the Guildford line with their own railway had been removed, and an engine placed on the 'up' crossing.

"The South-Western train reached Havant at 7 a. m. in charge of Driver (Engr.) Scott. While part of his 'bodyguard' beat off the Havant defenders, platelayers began to replace the point rail. Then they took possession of the engine, which still blocked their way, and ran it into a siding despite some opposition. While this skirmishing was going on, the Havant forces were mounting and sufficient men were found to hold the intruders at bay while more rails were removed—this time on the Portsmouth side of the junction. When Driver Scott and his boys discovered this further snag, tempers rose and the two sides gave battle in earnest."

More than 500 men were involved in the melee. Although Scott's men were driven off, arbitration permitted the new line to open the next January 24th.

* * *

UNDIGNIFIED, but comfortable. Now that winter is with us, Robert W. Sterling, 152 Cottage St., Everett 49, Mass., reminds us of last summer's heat wave. He states that on August 13th the weather was so warm in New England that the Boston & Maine broke a 114-year tradition by allowing passenger conductors and trainmen to work their trains without wearing coats or vests. The stipulation was made that the men must have clean and neat-appearing shirts on or else they could not remove their coats. Our correspondent wonders how the ticket collectors made out in the absence of the usual number of pockets for their many needs.

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MORRIS D. DONOVAN, retired engineer, Louisville & Nashville, who used to write letters occasionally to this department, pulled into the Last Terminal and was buried the other day at Covington, Ky. His rail career began in 1890 on the old Indiana Midland, an L&N subsidiary. From 1906 till 1922 he worked out of Birmingham, Ala., and was on the Cincinnati Division at the time of his retirement in '41. Mr. Donovan was a gifted story-teller with a ready sense of humor. He carried on a large correspondence with *Railroad Magazine* readers.

* * *

DINER-SEAT reservations are a feature of the *Empire Builder's* 45-hour streamliner in operation between Chicago and Seattle. Passengers no longer stand in line for dinner. You are given a choice of five one-hour periods, the first at 5 p.m., the last at 9:15 p.m.

Besides the *Empire Builder,* four other long trains pull into Seattle every morning between 7:30 and 8:30, the others being the *Oriental Limited,* also Great Northern; the *Olympian Hiawatha,* Milwaukee Road; the *Columbian* and the *North Coast Limited,* both Northern Pacific. The *Olympian Hiawatha* boasts an innovation, Touralux sleepers, which cost the passenger about one-third less than the use of standard sleepers.

* * *

RAILROAD QUIZ. The Questionnaires received from the readers of *Railroad Magazine* have been classified by railroads, and at the present time a crew from the Railroadians of America are tabulating and evaluating the balloting. Next month, the results will be announced.

As might be expected, the Pennsylvania led in the number of questionnaires, ten percent of the total received. The DL&W and the New York Central tied for second place, each receiving six prcent of the total. Next came the Santa Fe, the Boston & Maine, and the Southern Pacific, with five percent each; closely followed by the Milwaukee and Erie with four and one half percent each. Fifth place honors were shared by the Baltimore & Ohio, Canadian Pacific, New Haven and Reading, each having slightly less than four percent voting. Sixth position was occupied by the Canadian National, Chicago & Northwestern, Great Northern, Long Island, and Southern, each of which had about two and a third percent of the total. Seventh place in the numerical standing was held by the C&EI; D&H; Lehigh Valley; Northern Pacific; Seaboard Air Line; Union Pacific and the Western Maryland; each of which received about one and one half percent of the total ballots received. Eighth, and last place, honors were shared by nineteen United States railroads, and the FC de NE of Mexico.

It should have been made clear, for the benefit of railroad employes who were fearful of repercussions if they submitted signed questionnaires, that their names will not be made public; nor will any individual names be published.

Many of the questionnaires indicate a great deal of thought, and a genuine interest in rendering a service to the railroad industry by pointing out weaknesses which should be studied and corrected when found to exist.

* * *

LAST STOP is the Reader's Choice Coupon *(page 145),* which guides your editorial crew in selecting material for future issues of *Railroad Magazine.*

Some readers use the coupon. Others prefer not to clip the magazine; they send home-made coupons, postcards or letters. Regardless of how votes are written, all count the same. Results of balloting on the December issue show as follows:

1. Canada Rolls Its Own, *Rohde*
2. True Tales of the Rails
3. Pennsy's Steel Thunderbolts, *Clodfelter*
4. The Skunk, *Coontz*
5. Light of the Lantern
6. On the Spot
7. Electric Lines
8. Boss of the Seventeen, *Scism*
9. City of New Orleans
10. Locomotive of the Month

Most popular photos: pages 14, 124.

Photo by Kent W. Cochrane, 104 Camp St. New Britain, Conn.

VARNISH on New Haven's Bridgeport-Waterbury line. Location is north of Seymour, Conn., in the Naugatuck Valley

Railroad Camera Club

ITEMS sent to the *Switch List* and *Model Trading Post* are published free, in good faith, but without guarantee. Write plainly and keep 'em short. Print name and complete address.

Because of time needed to edit, print and distribute this magazine, all material should reach the Editor eight weeks before publication date. Redball handling is given to items we get the first week of each month, if accompanied by latest Reader's Choice coupon (clipped from page 145 or home-made).

Due to scarcity of space, we prefer that no reader be listed here oftener than once in three months.

Use these abbreviations : *pix,* photos; *cond.,* condition; *ea.,* each; *elec.,* electric; *env.,* envelope; *eqpmt.,* equipment; *esp.,* especially; *info.,* information; *n.g.,* narrow-gage; *negs.,* negatives; *p.c.,* postcard; *pref.,* preferably; *tr.,* train.

And these photo sizes: Size 127—1⅝x2½ inches; Size 117—2¼x2¼; Size 130—2⅞x2⅞; Size 118 or 124—3¼x4¼; Size 122 or p.c.—3x5½; Size 616 same as 116, on thin spool; Size between 10 and 2¼x3¼ ins.

The term *tts,* refers to public timetables, unless preceded by *emp.,* when it means employes' (operating) timetables.

(R) indicates desire to buy, swap or sell back issues of *Railroad Magazine* or its predecessors, *Railroad Man's* or *Railroad Stories. (Specify condition of each copy.)*

(*) indicates juicefan appeal.

RAILROAD CAMERA CLUB is open to all who collect railroad or streetcar pictures or other railroadiana such as time tables, passes, train orders, trolley transfers, magazines, books, etc. There are no fees, no dues.

Membership card and pin are given free to anyone sending us the latest Readers Choice coupon and a self-addressed stamped envelope. If you don't want to clip page 145 make your own coupon. Address *Railroad Magazine*, 205 E. 42nd Street, New York City 17. Tell us what you want or what you offer; otherwise your name will not be printed here.

Switch List

KENNETH W. ACKERLY, 147 Algonquin Rd., Hampton, Va., will sell *Model Craftsman*, Dec. '35, Aug. to Dec. '36; Jan.-Apr., Aug.-Dec. '37; Jan., Mar., Aug.-Dec. '38; Jan., Apr.-Dec. '39; Jan.-Aug., Nov., Dec. '40; Jan.-Apr., Sept.-Dec. '41 Jan.-Apr., June-Nov. '42; Mar., July, Aug., Oct. '45; 60 good cond., 4 fair. Highest bid accepted.

(*) PETE ASCHER, 215 St. John St., Portland. Me., has good clear size 616, 620 pix steam, 8 juice New England, 5c, 4c ea.; has many NE. negs. to trade for those other areas. List, sample 10c.

Still from RKO Pathe's "Whistle In the Night

ENGINEER oiling a side rod bearing on his locomotive before leaving on a night run

ED AXTHELM, 286 Elm St., Marion, O., will swap size 116 pix Panama, Puerto Rico, Bermuda rrs. for other foreign rr. pix.

P. J. BAKER, 2950 Denton Ave., Wilmar, Calif., formerly fired eng. called *The Goat* in CB&Q yards at Seneca, Nebr., '17 or '18; would like pix of this balloon-stacker.

WM. F. BOLTON, Govt. Transport Officer, Box 28, Kumasi, Gold Coast, West Africa, wants Santa Fe, B&O, NY, N. J., Carlsbad Caverns pix., other rr.-operated motor buses, coaches. Will trade British rr. model mags., books; African curios; also wants action pix Santa Fe steam power.

(*) R. C. BRANDT, General Delivery, El Paso, Tex., wants pix Joplin & Pittsburg, Southwest Mo. interurban cars; offers in trade pix North Tex. Traction, Tex. Cut., Roby & Northern, Abilene Trac., El Paso Elec. Co.; also has for sale only emp. tts. Calif. rds., Ocean Shore, Death Valley, others, write for list, $5. ea.

J. H. BRINCKMANN, Jr., 44 Charles St., Metuchen, N. J., will sell *Railroad Journal*, Sept. '42 *PS Fast Line*, 25c; Nov., Dec. '42, *Rdg. Co.* 20c ea.; Jan.-Apr. '43, 20c ea.; May, July '43. 15c.

JAMES R. BURKE, 708 E. 2nd St., Eureka, Kan., has few size 616, AT&SF, MoP, UP, Frisco, C&S n. g., D&RGW n. g. pix for sale, trade, list free. Also AT&SF, Milw. ords.; wants info. C&S and D&RGW n. g.

(R*) CHAS. G. CHALOUX, 677 E. 231st St., Bronx 66, N. Y. offers back issues *Railroad Magazine, Trolley Sparks, Interurbans, ERA Headlights, Elec. Railroads, The Marker, Spec. Bulletins* for sale; also trk. maps, tts., excursions, misc. Elec. Ry. literature.

(R) GILBERT COLLINS, 148 Bill Ave., Groton, Conn., will sell *Railroad Magazines*, '44 through Oct. '47; 38 copies, $8. for lot.

(*) BILL COO, Box 202, Copper Cliff, Ontario, will sell size 620 pix Sudbury-Copper Cliff Suburban Elec. Ry., clear, glossy, 12 diff., incl. plow, work car, 75c; also buys CPR emp. tts.

W. H. COX, 1146½ S. Clark Drive, Los Angeles 35, Calif., wants *Trains*, Nov., Dec. '40; Jan., Mar., Apr. '41; or will buy Vol. 1, 2, bound, loose copies; also *Highliners* by Lucius Beebe.

(R) G. B. DALY, 2100 Rosevilla St., Pasadena 10, Calif., will sell *Railroad Magazines* June, Sept., Nov. '36; Sept., Oct. '37; '39, exc. Mar., June, July, Dec.; '40, exc. Jan., Apr., Oct.-Dec.; '41, exc. June, Aug.; '42, exc. Jan., Apr., Nov.; '43; '44, exc. July-Nov.; 20c ea., excell. cond.; all *Trains*, all '46, $2; '47 to Oct. $1.50, excell. cond.

(*) STEPHEN P. DAVIDSON, 902 Swann St., Parkersburg, W. Va., wants negs. B&O locos built between 1885, 1905; will trade size 116 negs. 1300 series, 116, p. c. pix all W. Va. elec. lines; Quebec, Montreal, Calgary elec., 15 diff. classes Va. Rwy. will sell pix; size 116, 8 for $1.; p. c., 7 for $1.

Beebe's *Trains in Transition;* vol. 1

WILLARD F. DOVEL, 146 E. Elizabeth St., Harrisonburg, Va., wants *Trains*. Quote price, cond.

(*) FRANK E. DUPUY, 649 Sycamore Dr., San Gabriel, Calif., wants caliope, showboat, circus type, steam pref., with or without boiler. For caliope info. will trade five size 116 pix, Carmino de Ferro e Fuz de Natal Brazil (elec. n. g.), Estrada Ferro Central Rio Grande de Norte (steam n. g.), SP. PE.

(*) OLIVER T. DUSENBURY, Riverhead, N. Y., will sell folders PRR trains Nov. 15, 1891; Henry Gaze & Sons prog. Arrangements for Traveling, Hotel accommodations, World's Columbian Exposition, map 1893; Hendrickson's conducted tours World's Columbian Exposition, Chicago; The Wayside Inn Cafe with plan showing streat. lines, time of Exposition; other old folders.

WILLARD B. EGAN, 491 E. Orange St., San Bernardino, Calif., wants pix of old locos, depots, cabooses, old wrecks, coaches, eng. houses, etc., pref. from Ill., Iowa, Wis., Ind. and Mich.

HARRY E. ENTLER, Chicago 21, Ill., *you did not give compl. address.*

JOHN ERICKSON, 21 Park Pl., Brooklyn 17, N. Y., has PRR emp. tts. East Region; will trade, sell. List for stamp.

(R) JOSEPH FELIX, 208 Pleasant St., Roseville, Calif., will sell *Railroad Magazine* Jan. '42 to date, good cond. for best cash offer.

RICHARD FOX, 618½ Dewey Ave., Elyria, O., wants size 116, 616 pix NYC, L1, L2, L3, L4 locos, B&O, Q1, Q4, Q7F. Price list welcome.

(*) L. C. FITZGERALD, 529 Hamilton, Wood River, Ill., looking for someone interested in trading pix; has been taking same since '33; would like to trade set *CERA bulletins*, exc. 23, 56, for 35 mm. camera.

(*) WM. B. GWALTNEY, 2808 Kimball Terrace, Norfolk 4, Va., has B&O, CAR, SOU, C&O, NS, N&W, PRR, RDG, VGN, many other eastern, western rd. pix, trolleys, 20, 116 and 25 120, $1. List, sample 10c.

JOHN HARRIS, R. D. 1, Box 28, Lincoln University, Pa., offers size 116 pix all classes PRR, RDG, many B&O, AT&SF, SP, short lines, n. g. locos, 36 for $1. Will trade PRR negs. for PRR, RDG, others.

(R) C. W. HARRIS, Rosemount, Sutton Valence, Maidstone, Kent, England, wants *Railroad Magazines* July '32; Nov., Dec. '39; Jan-Apr., July, Aug. '44; *Model Engineer* '42 to date, good cond., (52 issues per yr.) sell or swap for above *Railroad Magazines*.

(*) C. EDW. HEDSTROM, 216 E. Barker Ave., Michigan City, Ind., will trade for or buy Apr. '42 *Trains*. Has CSS&SB pix, emp. tts., tr. ords., switch lists; also IC Terminal Div. emp. tts.

(R) QUINNIE HOUCHIN, 332 S. Maple St., Centralia, Ill., will sell 31 issues *Railroad Magazine* May '45 to Nov. '47, excell. cond. $5.50 all.

ARTHUR B. JOHNSON, 1072 E. Commercial St.,

Springfield, Mo., sells size 616 Frisco, AT&SF, NYC, PRR, SP, UP, RUTLAND, MoP, CNR, CPR, others, eng. pix, 20 for $1. List, 2 samples 10c.

(R) A. H. KNICKLEBINE, R. R. 2, Box 635, Pueblo, Colo., will trade Feb., Mar., July '47 *Railroad Magazines* for Aug. '42, Oct. '46, Jan. '47 issues good cond., no clipped.

M. KOCH, 1115 Bryant Ave., Bronx 59, New York, will pay good prices for certain *R&LHS Bulletins*.

WM. C. LARKIN, Champlain College, Plattsburgh, N. Y., has size 116, 3¼x4¼ pix D&H, Rutland locos, trs., still, action, all types; also interesting right-of-way shots; no list. Wants Mar., Aug. '41; Apr., Oct. '42; Jan. '43 *Trains*.

(R) PAUL LEISTER, 519 Walnut St., Sanbury, Pa., wants to sell '45, '46, '47 issues *Railroad Magazines*, *Trains*, *Journals*; many foreign pix, booklets; has few 8x10 pix Am., foreign Diesel, steam locos. Will dispose of collec. reasonably.

(*) JOHN LesCANEC, 173 E. Burlington St., Riverside, Ill., has Richmond, Norfolk, Petersburg, Roanoke, Va. streetcar pix. Will trade, sell; also other pix midwestern cities.

(*) STUART A LIEBMAN, Box 379, North Hollywood, Calif., has Pac. Elec., Los Angeles Rwy., San Diego Elec. Ry. pix, negs. to trade, sell. List, sample 10c.

(*) ARTHUR LLOYD, Jr., 1806 Silverado Tr., Napa, Calif., has size 616 pix western juice, steam lines, sell 13 for $1. Send for list. Trades size 616 juice negs., emp.tts.; also western steam.

KENNETH S. MacDONALD, 1090 Prince St. E., Luro, Nova Scotia, Canada, sells size 616 loco pix, CN, CP, DAR, L&NO, CU, SP, QC, C&QW, etc., Aation, NS&L, Peoria Ill. Sty. Ry., abdn. state rds.; wants negs. GLW, CU, BAR.

ROBT. B. MARSH, 10 Forest Rd., Wayne, Pa., will sell, trade emp. tts. C&WI four-'41, PRR, Wash. Yd., six '45; Rdg. Co., Shamokin Div. nine '46; Phila. Div. six '33 for PRR recent emp. tts., Md. & Wmpt. divs.

(*) DON MATHER, 187 W. Sinclair St., Wabash, Ind., will buy size 616, 116 pix Indiana RR., CR&IC; also current CR&IC roster.

F. J. McATEER, RR.4, St. Thomas, Ont., Canada, wants to buy good, clear pix Cadiz, Bowdon, and Sylvania Central engs.; has Canadian Ry. eng. negs. to trade for same.

BILL McKEOWN, 515 Kenwood Ave., Ottawa, Ont., Canada, will trade CN, CP tr. ords., tts. Rock Island, MKT, CNW, SOO, FEC, RF&P. Will trade CN, CP negs. for those NH, B&A, B&M, MEC, CV.

WARREN MILLER, 306 Jerome Ave., Piedmont 10, Calif., has size 616 SP, WP, AT&SF negs., 25c up; small common carrier, higher prices; still has few Key System, SF Muny, Sacramento Northern frt. ry., 25c up; has some Twin City Lines (Minn.) 50c up. All negs. sent on approval.

(R) JAMES J. MORRISON, 2919 Castellar St., Omaha 5, Nebr., wants *Railroad Magazine* Jan., Feb., May, July-Nov. '34; Jan., Mar. '35. Also p. c. size pix GM&O. Alton locos, pass. eqpmt.

M. R. NARDELLA, 808 Seventh Ave., Altoona, Pa., has many old tts. '28 to '47 all U. S. rds. Send stamped env. for list.

(R) JOHN PACK, 1546 So. Keeler Ave., Chicago 23, Ill., has back issues *Railroad Magazines*, various months '39 to '47, 20c per copy, 6 for $1.

W. B. PACKARD, 119 Bowman St., Rochester 9, N.Y., will sell first issue *Trains* to top bidder.

RALPH H. PAYNE, Box 191D, RR. 7, Ebenezer Rd., Cincinnati 11, O., will trade loco negs., size 616, pref. B&O, for negs. any rd. entering Cinn.; also offers size 616 pix B&O, any rd. into Cinn., 3c ea., his choice. Will trade 10 pix for one neg. or will buy B&O negs.

BERT H. RAUER, 3474 Wilson Ave., New York 67, N. Y., offers pix *Train of Tomorrow*, size 3½ x 4¾, 6 for $1.50, set 10. $2., 25c ea.; no checks. Also 8x10, 11x14; send stamp for prices.

H. REID, 2808 Vimy Ridge, Norfolk, Va., is selling ltd. no. size 120, 116 eng., action pix, mainly eastern rds. from collec.; all pix on 116 paper; 6c ea. List for stamped env.

L. D. ROBARTS, 1527 18th Ave., Columbus, Ga., will sell books, *Trains, Tracks & Travel*, 6th Edition, $2; *Trains* Vol. 4, $1.50; *Trains* by Robt. Henry, $1; *RR Panorama*, by Kalmbach, $1; *Trains Albums of Photos, Locomotives on Parade*, $1, many other books.

(R) A. F. ROBERTS, Box 471, Santa Barbara, Calif., has *Railroad Magazines* Jan. '36 to Dec. '45; *Trains*,

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vol. 1 to 6, all excell. cond. Will sell either mag. as a unit; no single issues or yrs., 25c ea.

(R) CHAS. SARGENT, 600 Meridian St., Rt. 1, Sheridan, Wyo. will sell *Railroad Magazine*, '47 to date, exc. Oct.; also has Sept.-Nov. '46, good cond., 25c ea.

(R) GLENN SAUDER, 1300 Dwaes Rd., Muskegon, Mich., has early, late issues *Railroad Magazine, Trains, Model Craftsman, Model Builder*, many others, rr. fiction books. Will bind your mags. Wants '34, '35 *Model Railroaders*.

ADDISON A. SCHWALM, 26 Gloucester St., Apt. 6, Ottawa, Ont., Canada, has size 116 CN, CP power, smaller Can. rd. pix to sell or trade for pix U. S. rds., but welcomes all-comers. Exchange lists.

LESLIE M. SHANNON, Sr., 15 Fleetwood Pl., Newark 6, N. J., wants to buy Japanese, Chinese, German, engs. pix, size 5x7 or 8x10; also wants good. clear negs. any road size 120.

FRANK SMARZ, 1840 N. Orleans St., Chicago, Ill., has size 616 negs. Chicago rds. to swap for any type steam locos. No list. Wants to hear from R. E. Chaffin, Tom Mulaniff.

CARROLL W. SMITH, 152 Main St., Montpelier, Vt., wants Oct. '45 *Model Railroader*. Send pc. first.

LLOYD SPAHR, 236 Wier St. N., Hamilton, Ontario, Can. will sell American Liberty Head 5c piece, date '13. Make an offer.

WESLEY N. STEAD, Griggsville, Ill., wants to purchase Kodak pix no larger than 5x7 rr wrecks, anywhere in U. S.

GUNTER STETZA, 71 Henrici Strasse, Essen, British Zone, Germany will swap German street car and interurban material for same in U. S. and other countries.

(R) W. J. STEVENSON, Box 25, Othello, Wn., will sell 50 Coast (Milw.) Div. emp. tts., new, $3. p.p.; *Railroad Magazines*, Apr., July, '47, 15c ea.; *Trains*, July '47, 25c; *Milw. Almanac* '47, 10; *Milw. Coast and Ida Div.* tr. ords. 50 for 60c.

(*) VINCENT STGNERSON, 374 E. 209th St., Bronx 67, N. Y., wants pix CNE; also old NYCity str.cars., esp. old Rockaway Beach lines.

J. STILL, Sr., 931 6th Ave., Dayton, Ky., wants to trade pix all rrs., frt., pass. trs.; also swaps tts., out-of-date rr. passes.

MURRAY F. STONE, Box 631, Perth, Ont., Can. will sell good, size 620, 616, 4x6, 5x7 pix CP, CN power; some Am. locos; expects to have some foreign power soon; list, sample 10c. Will buy or trade pix for size 616 negs. CP, CN, certain Am. Diesel streamliners.

(*) WARREN D. STOWMAN, 7450 Forrest Ave., East Germantown, Phila. 38, Pa., will sell PRR pix, other rds. taken over by PRR, oldtime engs., 25c ea.; plus post; no trade. Various sizes, also n. g. gas elec., elec. Write for list.

L. A. STUCKEY, 658 11th St., Brandon, Man., Can., has size 116 CPR action pix in Rockies, most types eng. still, action CP, CN, GN, SP, UP, for sale, trade. Sends list any one rd.

(R) THOMAS T. TABER, III, 43 Hillcrest Rd., Madison, N. J., will sell *Railroad Magazine* '35 to date 25c; *Railroad Age* '34 to '38, $2. yr.; indexes '35 to '38; excell. cond.; will sell all 170 issues, some duplicates $13.

ALAN T. TATTERSALL, Apt. 5, 117 No. 2nd St., Palatka, Fla., will sell, trade for old rr. passes, pencils, old tkts., tts., emp. tts., passes. List on request.

E. L. TOMBERLIN, 632 E. 14th St., Oakland 6, Calif., will sell Key System uniform jacket, good cond., size 36R, $15. p.p.

(R) FRED L. TONNE, 214 N. Washington St., Shawano, Wis., will sell *Railroad Magazine* '36, thru '58, exc. Jan. '37, Apr. '38; also Feb. '39, Dec. '35: like new; Aug. 34, fair; to highest offer.

LAWRENCE K. TULEY, Rogers Center, Box 391. Bloomington, Ind., wants Dec. 44 *Trains*.

(R) WALTER UNRUH, Congers Rd., New City, N. Y., sells back issues *Railroad Magazine, Model Railroaders*, large collec. tts., emp. tts., catalogs, *Off. Guides*. Wants Erie tts. prior '38, esp. small div. List free.

E. E. VAN PATTEN, 2126 Guilderland Ave., Schenectady 6, N. Y., wants pix camelbacks, any rd., type, B&M, B&A, Rutland, CV, D&H, L&NE, Rdg., LV, DL&W.

BILL WEBER, 6117 Buena Vista Ave., Oakland 11, Calif., will sell *Bonanza Railroads* by Kneiss, '45, $2; Lee's *Casey Jones*, '39, $1.25; both excell. cond.

EDW. WEBER III, 8 Garden Ave., Chatheam, N. J., wants *Off. Guide of Rys.* prior '18; state date, price, cond.

JOHN W. WOOD, 123 11th St., Streator, Ill., wants to borrow, buy any pix, good, poor of old engs. St. J.

Reader's Choice Coupon

Stories, features and departments I like best in the February issue are:

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2. .....
3. .....
4. .....
5. .....
6. .....

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Occupation .....

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Railroad Magazine, 205 E. 42nd St., New York City 17.

SB&S RR., II&IRR (3-1) or old CI&S RR (NYC); also wants old engs. Wabash; has few to trade.

EMIL T. WUEPPER, R. 1, Bay City, Mich., has 909 *Off. Ry. Guide*, excell. cond. Make offer, cash only.

KENNETH R. WULFF, R. R. 2, Liberty Center, O., will sell size 116, 120 pix Wabash, DT&I, C&O, AT&SF, B&O, NYC, PRR; list, sample, 10c.

Model Trading Post

GEORGE CONDOYANNIS, *you did not give your address.*

W. H. COX, 1146½ S. Clark Dr., Los Angeles 35, Calif., will sell live steam loco, large 1½ in. to foot scale, suitable for estate, amusement park, 4-6-2 Pac. -type chassis, full size drawings, compl. set wood foundry patterns; outfit would enable good machinist to build estate rrs.

JAMES DAWSON, 9703 E. Kempton Ave., Cleveland 8, O., has Lionel 1665, 0-4-0 switcher, tender, 50 sec. Lionel str., curved trk., pass. car, derrick car, wrecking caboose, gon, tender, oil car. Make offer.

H. FREEMAN, 377 Ossington Ave., Toronto, Canada, will trade new Louis Marx 729 transformer for any 3/16 in. AF eqpmt.

ARTHUR H. GILES, 429 E. 64 St., New York City 21, N. Y., will sell Lionel std. gage locos, cars, trk., switches.

ROBT. P. HAHN, Jr., 631 Main St., Hellertown, Pa., will trade back issues *Air Trails, Model Airplane News, Flying Aces, Flying, Air News, Popular Mechanics, Popular Science, Mechanix Illus.* for Lionel O gage eqpmt.

W. E. HOFFMAN, 326 S. East Ave., Baltimore 24, Md., will sell PRR, LI, 1/4 in. scale steam type loco, first class cond., $75.; 21 scale frt. cars, $4. ea.; various car parts, trucks. Compl. details on request.

R. E. KITZMILLER, 1609 So. Ithan St., Phila., 43, Pa., will sell compl. HO model rr., mostly pre-war. List for stamp.

CHAS. R. LEWIS, 29 Pratt Ave., Towanda, Pa., will sell Lionel layout; locos, frts., pass., switches, curved, str. track, signals, bumper, Lockons, contactors, tunnel, flasher; would swap for good 16mm. sound projector. List free; approximate value $450.

R. C. McLAREN, 1035 Mapleton Ave., Oak Park., Ill., has large quantity O gage locos, cars, trk., switches, transformers, misc. accessories, excell. cond. Send stamp.

T. J. PELLETIER, R. 3, B. 39, Palouse, Wash., wants two Lionel O-gage 604 observation cars; six 603 Pullmans; two 814R reefers in orig. paints.

FRED. C. PICHT, Middletown Rd., Nanuet, N. Y., has AF. Lionel locos, cars for sale, trade. List for self-addressed env.

JAMES ROBISON, 99 Berkeley Pl., Brooklyn 17,

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JOHN H. ROUGEAU, Box 71, Bridgeboro, N. J., will sell or trade for Lionel O gage 225-226-700 Hudson, 708 switcher, 20 1/4 in. scale frt. cars. List for stamp.

IVAN M. SAUNDERS, 142 South Saint Clair St., Pittsburgh 6, Pa., has 35-40 O gage AF 7/8 gage S frts., 4-4-2, 4-6-2 engs. with few extra pieces trk, $25.; would prefer Pittsburgh deal; trade for English-European rolling stock, locos, HO gage only, esp. English stock.

FRED J. SCHEIBLE, 1214 N. Howe St., Chicago 10, Ill., has AF O gage engs., UP 4-8-4, NKP 0-8-0, NYC 4-6-4, PRR, K5 4-6-2, Atlantic 4-4-2. Will trade for S gage eqpmt., or sell.

FRED E. SCHORR, Jr., 613 W. Diamond Ave., Hazleton, Pa., will sell OO gage, 2 rail pass. eqpmt, others; also Lionel type Z-250 Watt transformer. List for stamp.

BILL SCHWARTZ, Jr., 51½ So. Kendall St., Battle Creek, Mich., will trade new Gilbert S gage tr. sets for HO gage scale locos, cars, track; also *Model Craftsman* mags. '33 to '47 for sale, trade.

G. D. SIMMONS, Box 173, Beulah, N. D., will sell new Lionel 027 set No. 1411W, good cond.

WARREN D. STOWMAN, 7450 Forrest Ave., East Germantown, Phila., 38, Pa., will sell Lionel 2-6-4 type, pass cars, hopper cars, etc.; also Lionel 2-4-2, 260 hand reverse with Ives eqpmt. Write for list, prices. First come, first served.

HARRY A. SUMMERS, 1435 Ashland, Norfolk 5, Va., has HO dock-side, AF Hudson, cars, rail, switches, also few std., O gage tinplate items, many HO scale buildings. List for stamp.

W. S. WEBER, 6117 Buena Vista Ave., Oakland 11, Calif., will sell Lionel type V transformer, Lionel elec. magnetic crane; both slightly used before war; unable to rebuild now, good cond. Write first.

R. J. WOODRUFF, 2715 N. 48 Ave., Omaha 4, Nebr., wants various O gage eqpmt., esp. Ives locos, pass. cars '29, '32 vintage; also will buy scale frt. eqpmt. from kits to finished cars.

Flagstops

CALENDAR issued for 1948 by the San Francisco Branch of Railroadians of America is the third of a projected series, and is lithographed in two colors on heavy, colored antique bristol stock. This year's calendar publicizes the Northwestern Pacific and carries photos and maps plus a sketch history of the system. Calendars are 50 cents each; $1.50 for three.

* * *

NORTHERN INDIANA CHAPTER, Railway & Locomotive Historical Society, Inc., meets at 7:30 p.m., on the second Tuesday of each month, except July and August, in Room 8, Union Station, South Bend, Ind. December meetings are closed—election and annual dinner. For information write to E. J. Danch, Secretary, c/o "Studebaker News," The Studebaker Corp., South Bend 27, Ind.

* * *

MORSE TELEGRAPH CLUB OF AMERICA, INC., incorporated in 1942 with Grand Chapter headquarters in Los Angeles, welcomes any telegrapher with one year of service. Annual dues are $1. For information write, E. T. Mulquin, 910 Public Service Bldg., Portland 4, Oregon.

* * *

WESTLAND MODEL LINES, recently organized in Los Angeles, proposes to construct a model road designed to become a self-supporting, revenue-producing road instead of the usual model club. Tentative plans call for an investment of more than $30,000, we are informed by Kenneth L. Koening, 4473 Crenshaw Blvd., Los Angeles.

* * *

ANNUAL DIRECTORS MEETING of National Railway Historical Society, Inc., was held in the Society's permanent headquarters, B&O Station Building, 24th & Chestnut Streets, Philadelphia, Sunday, Oct. 19th, 1947. Membership now numbers nearly 1000 members, coming from all walks of life and representing many occupations, with actual railroad workers in the minority.

E. F. Gardner, Publicity Director, 4721 Baltimore Ave., Philadelphia, says that readers of Railroad Magazine are invited to join. Membership includes free, illustrated quarterly magazine, separate mailings of interesting rail material, banquets, meetings, field trips and other activities. Membership is $2.

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